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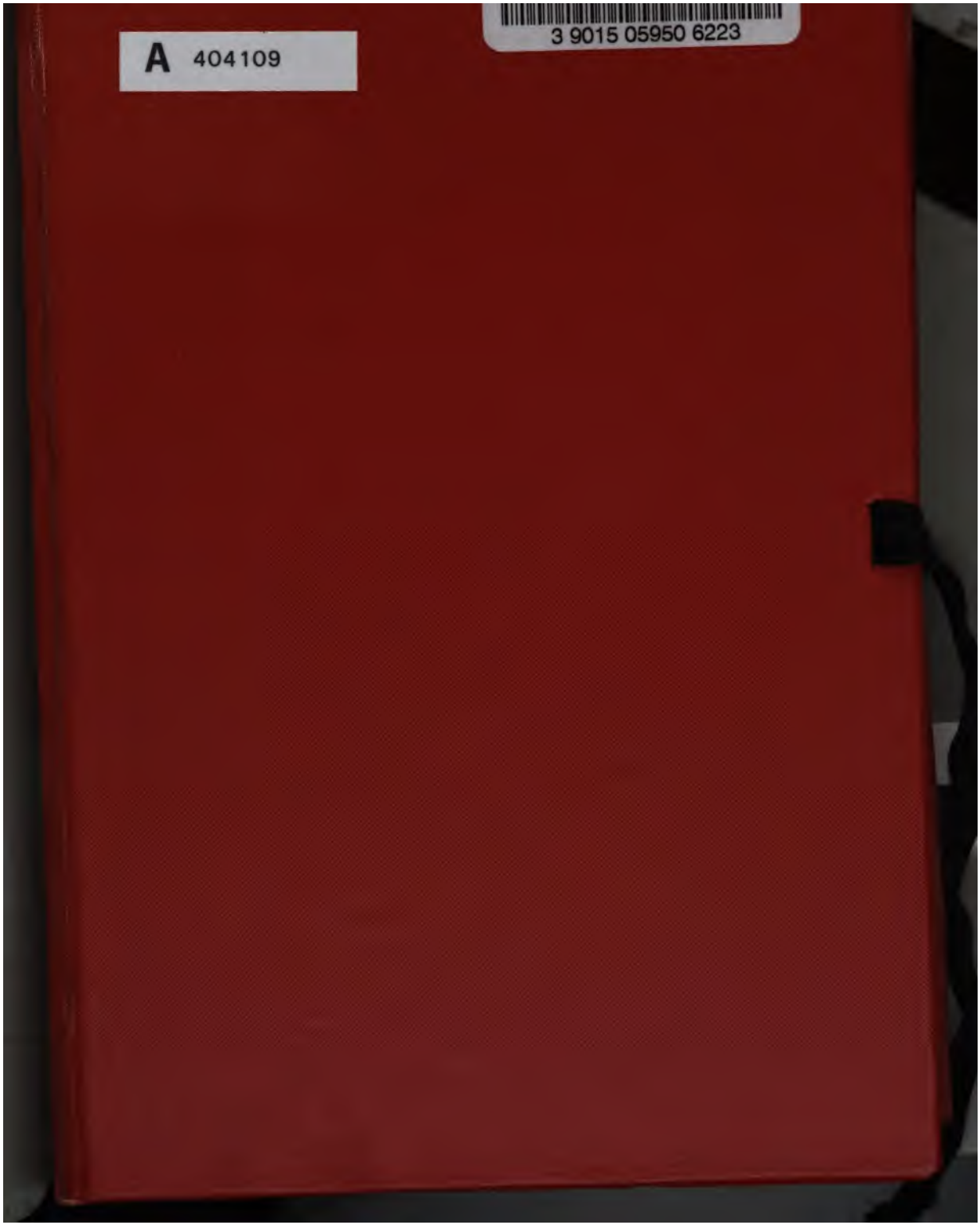
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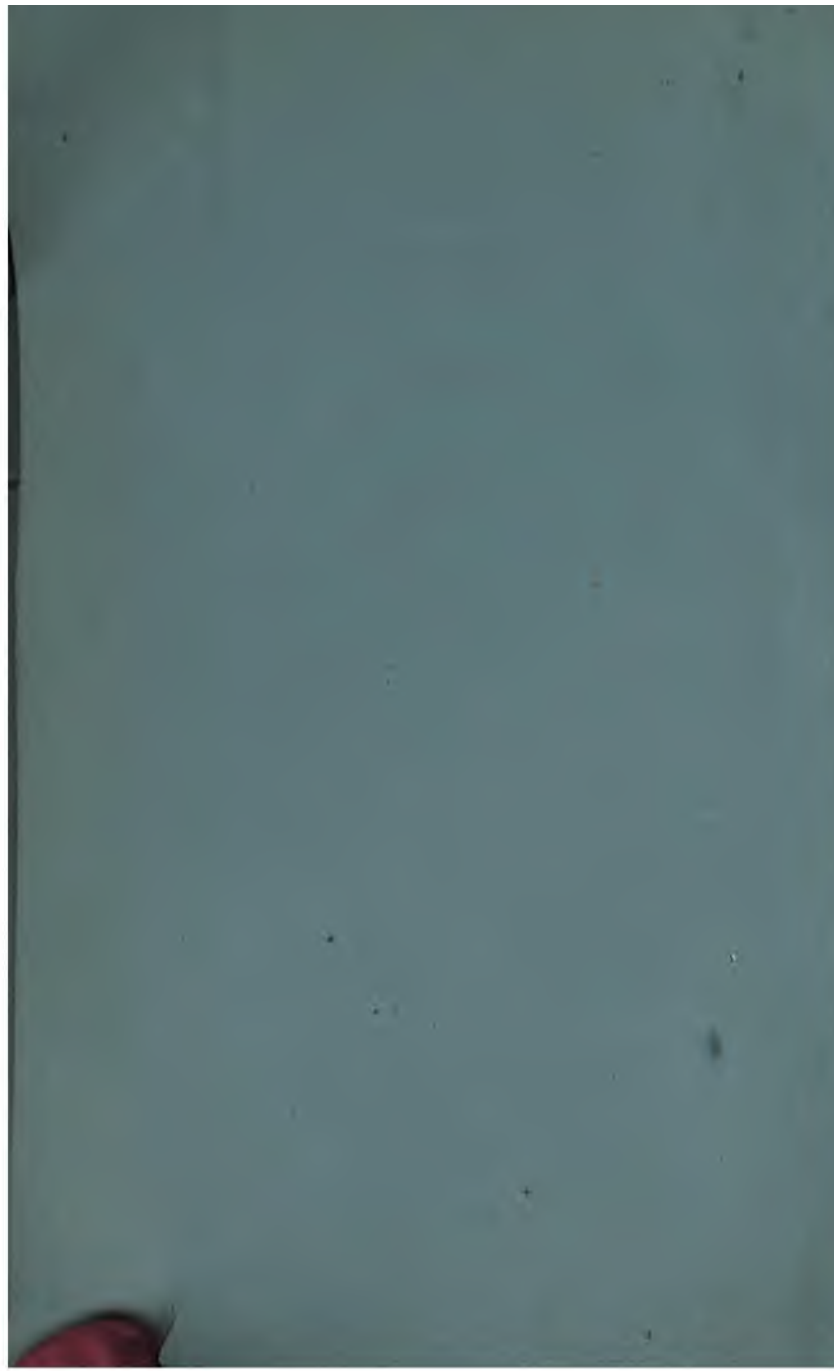
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APPLETONS'

GUIDE TO MEXIC(

INCLUDING A

CHAPTER ON GUATEMALA, AND AN ENGLISH-MEXICAN VOCABULARY.

BY

ALFRED R. CONKLING, LL. B., PH. B.,

MEMBER OF THE NEW YORK ACADEMY OF SCIENCES, AND FORMERLY UNITED S GEOLOGIST.

WITH A RAILWAY MAP AND ILLUSTRATIONS.

SECOND EDITION, REVISED.

NEW YORK:
D. APPLETON AND COMPANY,
1, 3, AND 5 BOND STREET.
1884.

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1883.

Letter from General Grant

New York City,
Dec. 3d 1884.

Dear Sir:

I have read over the advance sheets of your excellent Union-book to Mexico with great pleasure. It supplies a want now for the first time being felt. Mexico with all her resources of soil climate and mines has not attracted much of the attention

of peoples of other lands until within the last three or four years. Now with the rapid strides she is making — and is destined to make — towards a Commercial prosperity rarely equaled by any nation in the past, travel to that country will increase many fold, and your book will give the traveler the information he wants. Information is wonderfully condensed in it: and I wonder at its completeness in so little space.

Very Truly Yours
R. P. Crawford

Alfred R. Conkling Esq.

PREFACE.

SINCE the year 1880, a large amount of capital has been invested in Mexico by citizens of the United States. Within that period an unprecedented number of the English-speaking races have visited that country either as tourists, or as explorers with a view to an actual settlement and a permanent residence.

During a professional visit to the Mexican Republic, in the winter and spring of this year, the author experienced from day to day, and frequently from hour to hour, the want of a compendious guide-book. While many volumes of history and of general observation and travel relating to Mexico have, from time to time, been published, no book of this description is known to exist.

Believing that our sister Republic will in future, to a far greater extent than ever before, be the resort of the capitalist, the speculator, the artist, the archæologist, the valetudinarian, and the pleasure-seeker, as well as of the intelligent and enterprising man of business, the author has endeavored to render each and all an acceptable service by the preparation of this manual. It has been his

constant aim to use the shortest words, and to adopt the most compact and abbreviated forms of expression consistent with perspicuity. In the spelling of both proper names and places he has, for the most part, followed the orthography of the best maps and of the standard works on Mexico, except where changes have been introduced by common usage. For instance, the name of President Santa Anna, although correctly spelled with a single letter "*n*," has so long been spelled with a double "*n*," that the change may be said to be sanctioned by universal usage.

The vocabulary of Spanish words, together with the collection of colloquial phrases, has been made as complete as the limited space devoted to it would permit. At present every new-comer, unless a Spaniard or a Spanish scholar, is obliged to purchase a dictionary immediately on his arrival in the country. It is believed that this want will be in a great measure supplied by this volume.

One half of this work is in the form of a compendium of general information for the use of tourists as well as of settlers. In the itinerary, all names of places are italicized for the convenience of the reader.

It is to be borne in mind that Mexico is at present in a transition state. The beard may be said to have grown during the shaving. It has accordingly been found necessary to revise the proof-sheets of Sections IV and V up to the moment of going to press.

The author desires to express his great obligation to General U. S. Grant; General Manuel Gonzalez, the

President of Mexico; Señores Matias and Cayetano Romero, of the Mexican Legation at Washington; Don Ignacio Mariscal, ex-Secretary of Foreign Affairs of the Mexican Republic; Hon. P. H. Morgan, United States Minister at Mexico; Hon. D. H. Strother, Consul-General of the United States; Hon. W. P. Sutton and Hon. A. Willard, Consuls at Matamoros and Guaymas respectively; Mr. Simon Stevens; Thomas Nickerson, Esq., Rudolph Fink, Esq., and D. B. Robinson, Esq., of the Mexican Central Railway Company; and to Messrs. Spackman, Gardner, and Nevin, of the Mexican National Railway Company, for much valuable information and assistance in the preparation of these pages.

NEW YORK, *November 1, 1883.*

PREFACE TO SECOND EDITION.

THE first edition having been exhausted in about two months, the author has, after thorough revision, prepared a second edition, containing the latest information concerning Mexico. Owing to American enterprise, the Republic is rapidly progressing.

The plates of the chapter on the Mexican Central Railway have been altered, and the most complete list of stations obtainable at the time of going to press has been published.

The author desires to record his grateful sense of obligation to many critics of the American press for valuable suggestions.

He also renews the expression of his thanks to Señor Romero, Hon. W. P. Sutton, Hon. D. H. Strother, Mr. Nickerson, Mr. Spackman, and Mr. Nevin, and also to Mr. E. L. Plumb, for much assistance in the preparation of this edition.

NEW YORK, *March 10, 1884.*

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PART FIRST.

GENERAL INFORMATION.

I.

Traveling in Mexico.

HINTS.

THE reader will generally find railway fares, hotel charges, tariffs for hacks, etc., given in the body of the Guide-Book, but a few words may be of use at the outset.

The cost of traveling by rail in Mexico is considerably higher than in the Northern and Eastern States of the American Republic. (For table of fares, see chapter on railroads.)

There are first, second, and third class cars on the railroads. At present (1883), traveling in Mexico is as safe as in the western part of the United States. There are no brigands on the stage-roads any longer, except in the States of Jalisco and Sinaloa. It is well, however, to go armed, and to keep your fire-arms *in sight*. Escorts of mounted guards called the *Guardia Rural* accompany the diligences. Train-robberies are thus far unknown. The traveler is advised to take as little baggage as possible, as the railroads only allow 15 kilogrammes (33 pounds), and the diligences one *arroba* (25 pounds). The rates for extra baggage are

very high. Wraps and hand-bags, carried into the passenger-cars, are, of course, free of charge. Passengers must purchase tickets before their baggage can be checked. They will receive a paper check with a number corresponding to that of a label pasted on the trunk or valise. Wells, Fargo & Co. have established express agencies in the Republic, and there are baggage-express companies in Puebla and Mexico. In the large cities, coaches do not meet trains on arrival as in the United States, but horse-cars usually pass the doors of the hotels. Hacks are common, and can be hired to the hotel at an average price of four *reales*. Diligence-drivers and railroad-porters do not expect fees. Carry soap and matches with you. The natives make excellent wax-matches called *cerillos*, which are sold at one *centavo* a box. As regards clothing, the tourist does not require as thick garments on the coast as upon the table-land. Woolen under-clothing should be worn all the year round on the *tierra fria*, and for three quarters of the year in the temperate zone. A Mexican blanket, or *zarape*, will be found very useful for the tourist, in addition to a cloak or overcoat. It can be put on the bed at night and will serve as a wrap in the diligences. A linen duster is of great service in the dry season. On first reaching Mexico, care should be taken to avoid exposure to the direct rays of the sun. Although sunstrokes are very rare, yet headache or fever comes from a strong sun, until the tourist has become acclimated. Solar hats should be worn in the summer season. Keep out of the night air at first. There is a great difference between the temperature in the sun and in the shade on the table-land. Tourists should accordingly be careful to avoid taking cold. The facilities for washing clothes in Mexican cities are very poor, and it is advisable to have several changes of linen, so as not to be detained in a place on account of being obliged to wait for one's clean garments.

When to travel.

Owing to the configuration of the country, it is important that the tourist should select the proper seasons for traveling in the different zones.

The best time for visiting the *tierra caliente,* or hot land, south of latitude 25 degrees, is in the winter months. Northers blow from November to March, thus cooling the atmosphere; and the *vomito,* or yellow fever, rarely breaks out during this period. Tourists should not visit Vera Cruz between June 1st and November 1st.

The *tierra templada,* or temperate zone, and the table-land, may be frequented at any season, although the winter climate of the former is somewhat preferable.

If the tourist wishes to avoid the clouds of dust that rise on the great plateau of Mexico, he should travel in the rainy season, i. e., June to September. However, as many parts of Mexico can only be reached by the diligence lines (excepting on horseback), it is proper to state that both the summer and winter months have their advantages and disadvantages. In the rainy season the air is delightful, but the roads are in such a condition, owing to the very heavy showers, that they are often almost impassable. Sometimes the stage-coach will sink into the soft mud of the highway, so as to render it impossible to proceed. In such a case, the coachman will walk to the nearest *hacienda* and borrow a yoke of oxen to aid the mules in dragging the vehicle upon firm ground. These occurrences may cause a delay of several hours. In some places the road will be flooded for perhaps a quarter of a mile, and in crossing such a spot the diligence is occasionally imbedded in the yielding soil to an extent that makes further progress utterly impracticable, and the passengers may be compelled to spend the night in the coach. This latter event occurs only in a mountainous region. In short, the traveler can not

always make sure connections by diligence in the summer season.

Furthermore, the country is very sparsely settled. Villages where the tourist can obtain food and lodging are few and far between. As the stage-coach oftentimes fails to reach the "regular" stopping-place of the route during the day's journey, these facts should be borne in mind; and passengers are advised to carry provisions with them while traveling by diligence in the rainy season.

On the other hand, the dust rising in clouds, which often envelop the vehicle so that the surrounding country is invisible for a few moments, constitutes the only drawback to traveling by diligence in the dry season. The passengers are certain to arrive on time, unless delayed by some accident. Invalids intending to winter in Mexico, should spend several days near the coast or in the *tierra templada,* before exposing themselves to the rarefied atmosphere of the table-land.

How to travel.

Unless the tourist is familiar with Spanish, he is strongly advised not to travel alone in Mexico. Large parties are not recommended, owing to the small number of bedrooms in the hotels, and the limited capacity of the diligences. As a rule, the latter are run only three times a week, and the seats are frequently engaged for days in advance. Neither have the companies more vehicles to "put on" when the regular coach is filled with passengers. Occasionally the stranger will be obliged to spend two or three days in some uninteresting town while waiting for transportation.

As yet there are no professional couriers, but they will doubtless make their appearance before long.

In visiting the mining districts lying remote from cities, and in ascending the snow-clad mountains, a *mozo,* or ser-

vant, should accompany the tourist. He will make himself generally useful, and his wages should not exceed one dollar a day.

The following lists of short trips in Mexico are so arranged as to allow the traveler to see as much as possible in a given space of time :

ROUTE I.

Vera Cruz to Cordoba	½ day.
In Cordoba	1 do.
To Orizaba and remain there	1 do.
To Puebla	½ do.
In Puebla	1½ do.
To Mexico City	½ do
In Mexico	4 days.
Return to Vera Cruz	1 day.
Total	10 days.

ROUTE II.

Vera Cruz to Puebla	1 day.
In Puebla	1 do.
To Mexico City	½ do.
In Mexico City	1½ do.
Return to Vera Cruz	1 do.
Total	5 days.

ROUTE III.

First part same as Route II	5 days.
Mexico to Maravatio	1 day.
Maravatio to Celaya	1 do.
Celaya to Querétaro	1 do.
Querétaro to Mexico	1 do.
Total	9 days.

ROUTE IV.

Same as Route III, with the addition of 2 days, from Celaya to the mines of Guanajuato and return	11 days.

An "Agricultural" Trip.

Supposing the traveler to be in the national capital, a visit should be made to Querétaro and Lagos by rail; then to Guadalajara by diligence; thence to Uruapan by diligence and horseback; thence to Patzcuaro by horseback, and diligence to Morelia; return to Mexico by rail *via* Maravatio and Toluca.

A "Mining" Trip.

Starting from the City of Mexico, let the tourist make an excursion to the town of Pachuca by rail and tramway, and then return to the capital. Then go by rail to Guanajuato and Zacatecas; thence by diligence to Fresnillo, Sombrerete, or Durango. One can then reach the Mexican Central Railway at the nearest point, and visit Chihuahua, or return to the southern part of the Republic. The mining towns just mentioned are the most *accessible*, although by no means the only places worthy of the attention of the scientific traveler.

The Cost of Travel.

If the tourist intends to move about a great deal, he will have to spend at least forty dollars a week. If, on the other hand, he wishes to linger in the cities and stay at the best hotels, twenty dollars a week will cover the cost of living outside of the capital.

One month's trip from New York to Mexico and return, by steamer, will cost about $225. The same tour *via* New Orleans by rail, thence to Vera Cruz and return by steamer, will cost about $300. The expense of a journey from New York to Laredo, Texas, by rail, thence by rail to Saltillo, by stage-coach to Querétaro, and rail to the City of Mexico, will be about $175, including sleeping-car fares, meals, and lodging at the diligence taverns.

RAILROADS.

The great desideratum in Mexico has always been cheap and rapid transportation. For many years communication between the various towns could only be had by means of carts and on horseback. At length a system of diligences was established, which of course was only adapted to carrying passengers. The first line of railroad—that of the Mexican Railway Company, connecting the city of Vera Cruz with the national capital—was begun in 1837. On September 16, 1869, the branch of this road from Mexico to Puebla, a distance of 115¾ miles, was opened with great pomp and ceremony. Trains commenced running on the division between Orizaba and Vera Cruz on September 5, 1872, and the entire route was completed on January 17, 1873.

The Mexican Government, in September, 1880, granted charters to the Mexican Central Railway Company and to the Mexican National Construction Company, and in June, 1881, to the International and Interoceanic Railway Company. These corporations are the three great American trunk-lines of Mexico. In May, 1881, a concession was obtained by General U. S. Grant for a road to be known as the Mexican Southern Railroad.

The charters generally run for a term of ninety-nine years, at the end of which the roads revert to the Government. If the latter decides to sell or lease the lines, the companies are to be entitled to the preference.

The Government, since 1867, has issued charters to the several States, and to various individuals, for the construction of other railroads in the interior of the country. But none of these roads is of sufficient importance to merit an extended notice here, and many of the grantees have forfeited their charters for failure to complete their lines within the specified time.

The Liberal party in Mexico, who have recently come into power, believe that the development of the immense mineral and agricultural resources of the country can only be accomplished by the construction of railroads. Accordingly, having but little public land to grant for this purpose, the Government pays subsidies,* with the object of encouraging both natives and foreigners to build railways. These subventions, as they are called, vary from $6,500 to $9,500 per kilometre, and are supposed to amount to about one third of the cost of the roads. They now reach a total of about $7,000,000 annually.

A subsidy of $560,000 a year is given to the Mexican Railway, which is the only completed line in the Republic. It must not be assumed, however, that these subventions are paid in money. Revenue bonds are issued without interest, and an amount, varying from 4 to 6 per cent of the customs duties, is set aside for their redemption.

The American trunk-lines extend from the Rio Grande to the City of Mexico. A branch of one of them, i. e., the Mexican Central Railroad, is being built across the country from the Gulf to the Pacific Ocean. Another branch, that of the Mexican National Railway, is already finished for nearly one half of the distance between the capital and Manzanillo, the terminus of this division. This company has lately consolidated all its concessions under the law of January 11, 1883.

The Morelos Railway is expected to be continued to Acapulco, and the Tehuantepec Railroad will soon reach the Pacific coast. (See Sections VIII and IX.)

Hence, it will be seen that in the course of a few years three lines of railway will connect the capital with the United States, and four roads will traverse the Republic

* The total amount of railroad subsidies granted by the Mexican Government is given in round numbers at $126,000,000.

from east to west, thus establishing communication between the Gulf of Mexico and the Great Ocean. Other lines are progressing from Altata to Durango, from Piedras Negras toward Durango, and from Matamoros to Monterey.

None of the trains on the various railroads, as a rule, carry escorts or guards, except the Mexican Railway. A special car is provided on the latter for a squad of Federal soldiers. Occasionally the Mexican National Railway Company will send several guards on the pay-car, or on a train that transports an enormous amount of coin and bullion.

The plan of building railways in Mexico has been to work from each end toward a middle point. This method proved very expensive to the Mexican road, but it is found expedient in the construction of the American trunk-lines. The latter rarely pass through the cities and towns along the route, as the inhabitants prefer to keep the railroad-track at a considerable distance. At Monterey the station is one and a half miles from the city.

With the exception of the Mexican National Railway and the Morelos Railway (the latter being owned by Mexicans), the standard gauge has been adopted on the principal lines of the country. These two roads are constructed of the narrow gauge (*via angosta*), which is thought to be well adapted to the wants of the region traversed by them.

Mexico derives two great benefits from the construction of railroads—viz., in giving employment to a great many people, it produces a peaceful effect on them; and, in case of a revolution, the Government can send troops to the seat of war within a few hours.

The following table of charges for the transportation of freight and passengers on the trunk-lines will be found useful:

FREIGHT PER TON FOR EACH KILOMETRE.

ROADS.	First class.	Second class.	Third class.
	Cents.	Cents.	Cents.
Mexican Central Railroad	6	4	2½
Mexican National Railway	4	3	2
International and Interoceanic Railway	10	7	5
* Mexican Southern Railroad	10	7	5
† Mexican Railway	13	8	?

PASSENGER RATES PER KILOMETRE.

ROADS.	First class.	Second class.	Third class.
	Cents.	Cents.	Cents.
Mexican Central Railroad	3	2	1½
Mexican National Railway	2½	2	1
International and Interoceanic Railway	7	5	3
Mexican Southern Railroad	7	5	3
Mexican Railway	3 77/100	2 95/100	1 71/100
Morelos Railway	1½	1	½

Local fares are generally higher. As before stated, 15 kilogrammes (33 pounds) of baggage are allowed to each passenger. The rates for extra baggage are exorbitant.

Coal and fire-wood are very dear and scarce along the lines of the principal railroads. The deposits of the former that occur in Mexico are generally found at a great distance from the railways, while the timber growing in the adjoining regions is being rapidly cut down to be used for sleepers. The Mexican Railway Company imports compressed-coal cakes from England, as fuel for its engines.

The rolling stock and permanent way of the trunk-lines may be concisely described as follows:

The locomotives and cars of the Mexican Central Rail-

* The Mexican Southern Railroad Company is allowed to charge ½ cent more for coal per ton than the International Railroad.

† Railroad-iron costs $55 a ton for 263 miles.

road are of American manufacture. There are very few bridges and tunnels along the line. The maximum grade is three feet per hundred. The higher officials, conductors, and engineers are mostly Americans, while natives are employed as ticket-agents, baggage-masters, and brakemen.

The company owns a telegraph line.

The Mexican National Railway belongs, as above stated, to the narrow-gauge system. The locomotives and cars are made in the United States. The southern division has several tunnels and many bridges, some of which are of considerable dimensions, while the main line, north of Celaya, will traverse a flat table-land, without any heavy grades or bridges, except in the vicinity of Saltillo. The company has erected a bridge across the Rio Grande, which is described in Section IV. The heaviest grade amounts to three and four fifths feet per hundred, and is found near the summit of the Toluca division. A telegraph line has been built by the company, but the Government reserves the right to put up a wire for its own use on the poles.

Both of the American companies just mentioned have time-tables printed in English and Spanish, and their ticket-agents can generally speak both languages.

The Mexican Railway Company has imported most of its rolling-stock from England. The first-class carriages are built in the English style, with compartments, while the second and third class cars are on the American plan. The engineers are sent out from England and have charge of the train, whereas the conductors are merely ticket-collectors. French or English, besides Spanish, is spoken by the latter. There are many bridges and tunnels along the line, the former being made of iron resting on stone piers. The grades are very heavy between the stations of La Soledad and Esperanza, the maximum being five feet in a hundred. Owing to the great engineering difficulties, and to

the unsettled condition of the country during the period of construction, the main line cost $30,000,000.

The company's telegraph is described in Section II.

No rolling-stock has yet been purchased by the Mexican Southern Railroad, or by the International and Interoceanic Railway. So little work on these two lines has been done that a description of the permanent way would be premature.

STEAMSHIPS.

The majority of the steamships running to Mexico are owned and controlled by Americans. The *Alexandre** line of steamers plies between New York and Vera Cruz, *via* Havana, and also between New Orleans and Vera Cruz. The *Morgan* line runs between New Orleans, Galveston, and Vera Cruz. The *Pacific Mail* steamers touch at all the ports on the Pacific coast, beginning with Mazatlan. There are two lines of coasting steamers on the Pacific, which run as far north as Guaymas. One of them is owned by a Mexican, and the other belongs to an American. Small steamships sail from Matamoros (Bagdad) down the Gulf of Mexico, calling at Tampico, Tuxpan, Vera Cruz, Frontera, Campeche, Progreso, and intermediate ports. (For particulars as to time of sailing, fares, etc., see advertisements.)

Some capitalists in Mexico have recently organized a company, and have ordered six iron steamers, each of four thousand tons burden, which are to be run between England and Italy and Vera Cruz. Its title is the *Mexican Transatlantic Steamship Company*. One of the steamers is to be called the *Estado de Tamaulipas*, in compliment to President Gonzalez, and another the *Estado de Oaxaca*, in honor of General Diaz. The steamers will cost at least $700,000 each, and the engines will be of five hundred

* This line receives a subsidy of $2,000 per round trip from the Mexican Government.

horse-power. It is expected that some of the ships will be completed and begin running within a year. They are to be constructed by the builders of the well-known ocean-steamers Servia and Britannic, which run between New York and Liverpool, and are expected to have a speed of sixteen knots per hour.

DILIGENCES.

The diligence system, or *diligencias generales*, was established in Mexico about fifty years ago. The central office is in the capital, and coaches are run from Cuernavaca on the south, to Durango and San Luis Potosi on the north. Other lines connect the latter town with Monterey, and also bring Durango in communication with Chihuahua. The smaller diligences that are driven between the towns lying beyond the routes of the "general" system are called *diligencias particulares.*

The coaches are built in Mexico, after the "Concord" pattern. They soon wear out, owing to the rough pavements of the streets, and the bad condition of the roads. Each stage-coach has one and often two whippers besides the driver. The whipper will often descend from the box while the diligence is in motion, and run ahead, in order to strike the forward mules. When on the box he throws stones at the leaders. The coachmen generally drive in a very skillful manner, and are polite in their deportment toward the passengers.

Eight mules are attached to each vehicle in the dry season, and nine in the rainy season. They are arranged as follows: two wheelers and two leaders, with four animals abreast in between. Most of the diligences have accommodation for nine persons inside and three outside. The inside is called *el interior,* and the outside *el pescante.* A few of these vehicles have broader seats, so as to make room for twelve passengers within.

Travelers in the *pescante* should be on the lookout for the large lamps that are hung on wires across the streets, at a height barely sufficient to allow the diligence to clear them while passing under.

On the long trips the diligences generally start at 4 A. M., but occasionally not till 5 and 6 A. M. About 80 miles are traveled daily, which occupies from twelve to fifteen hours, according to the condition of the roads. It should be remarked, that not more than two or three diligence-roads in the whole country are kept in repair, and the shaking and jolting to which the tourist is subjected are exceedingly disagreeable. Experienced Mexican travelers are able to sleep in the diligence during the early morning, but this is seldom the case with the stranger.

On the arrival at the terminus of the day's journey, a crowd of porters and vagrants surround the vehicle, and importune the passengers to allow them to carry their baggage. A fee of 6¼ cents (*un medio*) is sufficient for the transportation of a valise for a distance of two or three squares.

Two dollars is the usual charge at the diligence taverns for supper, lodging, and breakfast. The price for lunch varies from 25 cents to 75 cents. Passenger fares range from 6 to 10 cents a mile. One *arroba* (25 pounds) of baggage is carried free, but the rates for additional weight are very high. Bundles of shawls and *small* boxes held in the hand are not charged for.

Hacks may be hired for moderate distances, but posting is rare in the country.

HORSE-CARS.

Tramways have been built in almost every city in Mexico. In many cases tracks have been laid to villages 10 and 15 miles distant, and a few horse-car roads connect stations on the railways with towns 30, 40, and even 60 miles off.

The longest tramway is from Vera Cruz to Jalapa, a distance of 70 miles. In general the horse-car tracks are well laid out, and a locomotive and train of cars may run on them at some future time. It is said that engines will soon be put on the tramways from Vera Cruz to Jalapa, and from Puebla to Matamoros. There are both passenger and freight horse-cars in the Republic, the former being divided into first and second class.

HORSES AND MULES.

Excepting the road built by Cortes from Vera Cruz to the capital, all communication between the cities and towns of Mexico was for many years made on horseback. This mode of traveling is still common in the rural districts. Tourists occasionally make trips, with a few pack-animals to carry baggage and provisions, in the remote parts of the Republic. Regular pack-trains of mules and *burros*, or donkeys, are run on the western coast. Horses are commonly fed on straw and corn. A good animal may be purchased for $50, and one able to make a short journey, for $20. Mules can be bought for about $30. If the tourist intends making a trip on horseback for ten days or longer, we would recommend him to purchase a horse instead of hiring one. These animals are always in demand, and can be sold at a slight loss on the completion of the journey. The average price for a saddle-horse is $1 per diem. In the larger cities the charge will be a little more.

Pedestrianism in Mexico is thus far unknown, excepting in the ascents of the lofty volcanoes.

EXPRESS.

Wells, Fargo & Co. have established express agencies at the following places in the Republic: Mexico (city); Tula; San Juan del Rio; Querétaro; Celaya; Salamanca; Irapuato; Silao; Guanajuato; Leon; Lagos; Vera Cruz;

Chihuahua (city); and in the principal ports on the Pacific coast of Mexico.

Messrs. Wells, Fargo & Co. also carry a large amount of mail matter from these ports to San Francisco and to New York.

II.

History.

It would be foreign to the aim of this guide-book to give a complete history of Mexico from the earliest times to the present day. We will confine ourselves chiefly to the chronology of the country.

The early history of Mexico is involved in great obscurity. The traditions of the aborigines are so fabulous as barely to deserve mention.

Picture-writings, mostly on cloth made from the *maguey* fiber, afford the principal means of investigating the origin of the primitive races. Unfortunately, nearly all of these historical illustrations were burned by order of the Spanish bishop Zumarraga, at the time of the Conquest. A few of them remain in Mexico, principally in the museum at the capital, and several have found their way to the libraries of Europe.

According to an old painting, on *maguey* cloth, in possession of a resident of Uruapan, in the State of Michoacan, this country was settled by Indians, who came out of an immense cave and traveled over the realm on the backs of turtles, founding cities and towns wherever they went.

Very little is known of the ancient history of Mexico, but, according to the best authorities—

The Toltecs appeared in 648 A. D.

The Chichimecs appeared in 1170 A. D.

The Nahualtecs appeared in 1178 A. D.

The Acolhuans and Aztecs appeared in 1196 A. D.

There is a strong similarity of languages among all of these races. The Aztecs, according to Prescott, reckoned their calendar from a date corresponding to 1091 A. D. They divided the year into eighteen months of twenty days each, with five days added. Some writers believe the Toltecs to be the mound-builders of North America, but it is impossible to learn the names of their sovereigns in Mexico. The list of Chichimecan kings is as follows:

Xolotl began to reign in the twelfth century.
Nopaltzin began to reign in the thirteenth century.
Tlotzin began to reign in the fourteenth century.
Quinatzin began to reign in the fourteenth century.
Tecotlalla began to reign in the fourteenth century.
Ixtlilochitl began to reign in the year 1406.
Nezahualcoyotl began to reign in the year 1426.
Nezahualpilli began to reign in the year 1470.
Cacamatzin began to reign in the year 1516.
Cuicuitzcatzin began to reign in the year 1520.
Coanacotzin began to reign in the year 1520.

We are not aware that any author has given a chronological account of the other primitive races.

The Aztecs called the country *Anahuac;* and the capital *Tenochtitlan,* which occupied the present site of the City of Mexico. They lived in barbaric pomp and Oriental splendor. Their kings and princes wore the most gorgeous dresses and costly jewels. (Their palaces and temples are described in the chapter on ruins.)

The reign of the Montezumas began about the year 1460. At the time of the arrival of the Spaniards, Montezuma II was on the throne. Authentic Mexican history really dates from the year 1517, when the Spanish navigators began to explore the New World. The dates of the principal events during the domination of the Spaniards are as follows:

Feb. 28, 1517. Cordova discovered Yucatan, landing at Cape Catoche.
May 3, 1518. Grijalva landed on the Isle of Cozumel, and called Yucatan "New Spain."
June 19, 1518. Grijalva landed at the mouth of the Rio Tabasco, and, sailing up the Gulf coast, reached the Rio Panuco, afterward returning to Cuba. He was the first Spanish navigator who set foot on Mexican soil, and opened intercourse with the Aztecs.
April 21, 1519. Cortes landed at Vera Cruz, and soon marched toward the City of Mexico, building a wagon-road thither.
Nov. 8, 1519. The Spaniards enter the ancient capital.
June 30, 1520. Death of Montezuma.
July 1, 1520. The Spaniards evacuate the capital—*noche triste.*
July 8, 1520. The battle of Otumba.
May 30, 1521. The siege of the City of Mexico begins.
Aug. 13, 1521. Surrender of the capital to Cortes.
1528. First *audiencia* inaugurated with Nuño de Guzman, President.
1535. Mint founded in Mexico.
1535. Rule of the viceroys began.

There were sixty-four viceroys in two hundred and eighty-six years, i. e., up to 1821. All of them were Europeans except one, Juan de Acuña (1722–'34), who was born in Peru. They were endowed with royal prerogatives. During the vice-kingdom, Mexico was treated by Spain in the same manner as the English governed the United States before the American Revolution. In other words, there were great restrictions on commerce and agriculture. Foreign ships were not allowed to enter the ports. Learning was discouraged. The first and most prominent viceroy was ANTONIO DE MENDOZA (1535–'50).

Many reforms and discoveries were made during his administration. Next to him, Pacheco (1789–'94) became most famous.

Some of the other viceroys were—Velasco, Alamanza, Montesclaros, Salinas (who began the canal of Huehuetoca, in 1607), Villena, Guelves, Ceralvo, Monclova, De Croix,

Monterey, Iturrigaray, Bucareli, and Juan O'Donoju, who was the last one.

1536. Cortes discovered Lower California.
Dec. 2, 1554. Cortes died in Spain.
1810. Hidalgo and Morelos, two curates, declare against the Spanish domination. A revolution follows, the army of the former is defeated, and—
July 31, 1811, Hidalgo is executed in Chihuahua. The war of independence lasted about ten years. The principal patriots were Allende, Abasolo, and Aldama, besides Hidalgo and Morelos. States have been named after the last two heroes, and towns bear the names of the others.
Aug. 23, 1821. Mexico became independent by the treaty of Aquala.
1821. Agustin Iturbide, President of a provisional *Junta;* Mexico formed into an empire; the crown declined by Spain.
May 19, 1822. Iturbide proclaimed Emperor.
Dec. 2, 1822. The Republic proclaimed at Vera Cruz.
Mar. 26, 1823. Iturbide compelled to abdicate.
1823. Provisional government.
July 19, 1824. Iturbide went to England; returns and endeavors to recover his dignity, but is shot near Tampico.
Oct. 4, 1824. First Constitution established, which is similar to that of the United States of America. The President must be native-born, and holds office for a term of four years. The President, national delegates, governors of the several States, and their deputies, are elected by the people. The power of the Mexican Government consists of the executive, legislative, and judiciary.
April, 1825. Commercial treaty with Great Britain.
1825. Guadalupe Victoria, first President.
1828. Gomez Pedraza becomes next President.
1829. The United States recognizes the Mexican Republic.
March, 1829. Expulsion of the Spaniards decreed.
1829. Guerrero third President.
Sept. 26, 1829. Spanish expedition against Mexico, surrendered.
Dec. 23, 1829. Mexican revolution; President Guerrero deposed.
1830. Anastasio Bustamante, fourth President.
Feb. 14, 1831. Guerrero executed.
1833. Pedraza President again for a few weeks.
April 1, 1833. Santa Anna, fifth President.

Dec. 28, 1836. Independence of Mexico recognized by Spain.
April 19, 1837. Bustamante again President.
Nov. 30, 1838. Declaration of war against France.
March 9, 1839. This war terminated.
Mar. & July, " Santa Anna, revolutionary provisional President.
1839. Nicolas Bravo, President for one week; sixth President.
1841–'44. Santa Anna, Nicolas Bravo, and Canalizo, dictators.
1844. Santa Anna, President for third time; seventh President.
Sept. 20, 1844. Canalizo, President for second time; eighth President.
June 4, 1845. War with the United States, growing out of the annexation of Texas. The question was a disputed boundary-line. Mexico claimed that the Nueces River was the frontier line, while the United States maintained that the Rio Grande was the proper boundary—hence the war. General Zachary Taylor began the hostilities on the side of the latter.
Dec., 1845. Herrera becomes ninth President.
1846. The Mexicans defeated at Palo Alto, May 8th; and subsequently at Matamoros.
Aug. 22, 1846. Santa Fé captured.
Sept. 24, 1846. Battle of Monterey.
1847. Paredes, tenth President.
Feb. 22, 1847. Battle of Buena Vista; the Mexicans defeated by General Taylor, with great loss, after two days' fighting. Santa Anna commanded the former.
March 9, 1847. Scott landed at Vera Cruz, and marched westward.
April 18, 1847. The Americans, under General Scott, defeat the Mexicans under Santa Anna, making 6,000 prisoners.
Sept. 14, 1847. Scott captured the City of Mexico.
1848. Santa Anna, President fourth time; eleventh President.
May 19, 1848. Treaty between Mexico and the United States ratified.
1850. Herrera, President second time; twelfth President.
1852. Arista, President; thirteenth President.
Sept., 1852. Political convulsions.
Jan. 6, 1853. President Arista resigns, and Santa Anna is invited to return.
1853. Santa Anna, President fifth time; fourteenth President.
Jan., 1855. He abdicates; Carrera elected President; fifteenth President.
Dec., 1855. Carrera also abdicates, and is succeeded by Alvarez.
1855. Alvarez, President; sixteenth President.

Mar. 31, 1856. Property of the clergy sequestrated.
Feb. 5, 1857. New Constitution.
July, 1857. Comonfort chosen President; seventeenth President.
Jan. 11, 1858. *Coup d'état;* Comonfort compelled to retire.
Jan. 21–26, " General Zuloaga takes the government.
Feb. 11, 1858. Benito Juarez declared constitutional President at Vera Cruz; eighteenth President.
Aug. to Nov., " Civil war; several engagements.
Jan. 6, 1859. General Miguel Miramon nominated President at Mexico by the *Junta*; nineteenth President.
Feb. 2, 1859. Zuloaga abdicates.
Feb., 1859. In consequence of injury to British subjects, ships of war are sent to Mexico.
April 10, 1859. Miramon forces the lines of the Liberal generals, enters the capital, assumes his functions as governor, and governs without respect to the laws of life and property.
July 13, 1859. Juarez confiscates the Church property.
Dec. 21, 1859. Miramon and the clerical party defeat the Liberals under Colima.
Mar. 5, 1860. He besieges Vera Cruz; bombards it; March 21st, compelled to raise the siege.
May 1, 1860. General Zuloaga deposes Miramon, and assumes the presidency; twentieth President.
May 9, 1860. Miramon arrests Zuloaga; May 10th, the diplomatic bodies suspend official relations with the former.
Aug. 10, 1860. Miramon defeated by Degollado.
Oct., 1860. He governs Mexico with much tyranny; the foreign ministers quit the City.
Jan. 19, 1861. He is compelled to retire; Juarez enters Mexico and is re-elected President; twenty-first President.
June 30, 1861. Juarez made dictator by the Congress.
July 17, 1861. The Mexican Congress decides to suspend payments to foreigners for two years—
July 27, 1861. Which leads to the breaking off of diplomatic relations with England and France.
Oct. 31, 1861. In consequence of many gross outrages on foreigners, the British, French, and Spanish Governments, after much vain negotiation, claiming efficient protection of foreigners, and the payment of arrears due to fund-holders, sign a convention engaging to combine in hostile operations against Mexico.

Dec. 8, 1861. Spanish troops land at Vera Cruz; December 17th, it surrenders.

Dec. 15, 1861. The Mexican Congress dissolves, after conferring full powers on the President.

Jan. 7, 8, 1862. A British naval and French military expedition arrives.

Jan., 1862. The Mexicans determine on resistance, and invest Vera Cruz; their taxes are raised 25 per cent.

Feb., 1862. Miramon arrives, but is sent back to Spain by the British admiral.

Feb., 1862. Project of establishing a Mexican monarchy for the Archduke Maximilian of Austria disapproved of by the British and Spanish Governments.

Feb. 19, 1862. Negotiation ensues between the Spaniards and Mexicans; convention between the commissaries of the allies and the Mexican General Doblado at Soledad.

March, 1862. The Mexican General Marquez takes up arms against Juarez, and General Almonte joins the French General Lorencez. Juarez demands a compulsory loan, and puts Mexico in a state of siege.

April 9, 1862. Conference between plenipotentiaries of the allies at Orizaba; the English and Spaniards declare for peace, which is not agreed to by the French, who declare war against Juarez on April 16th.

May, 1862. The Spanish and British forces retire; the French Government sends re-enforcements to Lorencez.

May 5, 1862 The French, induced by Marquez, advance into the interior; severely repulsed by General Zaragoza, at Fort Guadalupe, near Puebla.

June 13, 14, " The French defeat the Mexicans at Cerro del Borrego, near Orizaba.

August, 1862. The Mexican Liberals said to be desirous of negotiation.

Aug. 28, 1862. General Forey and 2,500 French soldiers land.

Sept., 1862. Letter from the Emperor Napoleon to Lorencez, disclaiming any intention of imposing a government on Mexico, announced.

Sept. 8, 1862. Death of Zaragoza, a great loss to the Mexicans.

Oct., 1862. General Forey deprives Almonte of the presidency at Vera Cruz, and appropriates the civil and military power to himself.

Oct. 19, 1862. Ortega takes command of the Mexican army.

Oct. 27, 1862. The Mexican Congress assembles, and protests against the French invasion.

Jan. 13, 1863. The French evacuate Tampico.

Feb. 24, 1863. Forey marches toward Mexico.

Mar. 29, 1863. Siege of Puebla, bravely defended; severe assault, March 31st to April 3d.

May 18, 1863. It is surrendered at discretion by Ortega.

May 31, 1863. The Republican Government remove to San Luis Potosi.

June 5, 1863. Mexico occupied by the French, under Bazaine.

June 10, 1863. His army enters the capital.

July 10, 1863. Assembly of notables at Mexico decide on the establishment of a limited hereditary monarchy, with a Roman Catholic prince as Emperor, and offer the crown to the Archduke Maximilian of Austria; a regency established.

Aug. 11, 1863. The French reoccupy Tampico.

Oct. 1, 1863. Marshal Forey resigns his command to Bazaine, and returns to France.

Oct. 3, 1863. The Archduke Maximilian accepts the crown, under conditions.

Nov. 12, 1863. The Mexican General Comonfort surprised and shot by partisans.

Dec. 18, 1863. Successful advance of the imperialists; Juarez retires from San Luis Potosi.

Dec. 24, 1863. It is entered by the imperialists.

Jan., Feb., '64. The French occupy various places.

Feb. 27, 1864. The ex-President, General Santa Anna, lands at Vera Cruz, professing adhesion to the empire; March 12th, dismissed by Bazaine.

April 3, 1864. Juarez enters Monterey, which becomes the seat of the Republican Government.

April 10, 1864. The Archduke Maximilian definitively accepts the crown from the Mexican deputation at Miramar.

May 29, 1864. The Emperor and Empress land at Vera Cruz; June 12th, enter the City of Mexico.

August, 1864. The Emperor visits the interior; grants a free press.

Dec. 27, 1864. The Republicans defeat the Imperialists at San Pedro.

Jan. 1, 1865. Juarez at Chihuahua exhorts the Mexicans to maintain their independence.

Jan. 18, 1865. The Emperor institutes the order of the Mexican Eagle.

Feb. 9, 1865. Surrender of Oaxaca to Marshal Bazaine.

April 10, 1865. A temporary Constitution promulgated.

June, 1865. Ortega, at New York, enlists recruits for the Republican army, which is discountenanced by the United States Government.

Maximilian I (brother to the Emperor of Austria), born July 6, 1832; accepted the crown April 10, 1864; married, July 27, 1857, to Princess Charlotte, daughter of Leopold I, King of the Belgians; adopts Augustus Iturbide as his heir, September, 1865.

October, 1865. The Emperor proclaims the end of the war, and martial law against all armed bands of men.

October, 1865. Juarez re-elected President second time.

June 19, 1867. Execution of Maximilian at Querétaro.

1869. Juarez re-elected President third time.

July 18, 1872. Death of President Juarez.

1872. Lerdo de Tejada, twenty-second President.

Jan. 17, 1873. English railway, from Vera Cruz to Mexico (263 miles), completed.

June 20, 1876. Death of Santa Anna.

Oct., Nov., " Serious revolution in Mexico. Lerdo de Tejada, though elected a second time, is prevented by the Diaz party from serving as President.

Dec. 1, 1876. Juan N. Mendez, twenty-third (provisional) President.

May 5, 1877. Porfirio Diaz, twenty-fourth President.

May 5, 1877. Amendment of the Constitution, prohibiting the election of the President and the Governors of the States to a second term of office.

Dec. 1, 1880. Manuel Gonzalez, twenty-fifth President.

Dec. 1, 1884. Manuel Gonzalez's term expires.*

It is generally conceded that Porfirio Diaz, the present Governor of the State of Oaxaca, will become the next President of the Republic. No revolution has taken place since 1876.

Books of reference: Prescott, *Conquest of Mexico;* Robertson, *History of America;* Lucas Alaman, *Historia de Méjico;* Zamacois, *Historia de Méjico.*

* Many of these events are taken from Haydn's *Dictionary of Dates.*

III.

Geography.

SITUATION.—The Mexican Republic extends from the 15th to the 32d degrees of north latitude, and from the 87th to the 117th meridians of longitude west from Greenwich.*

BOUNDARIES.—Mexico is bounded *on the north* by the United States of America, whose frontier is marked as follows: from the mouth of the Rio Bravo, or Rio Grande del Norte, following the course of the river to the parallel of 31° 47′; thence it is continued for 100 miles to the west on the same parallel, then to the south to latitude 31° 11′. It now follows the latter parallel to the 111th meridian, and then runs to the northwest as far as the Rio Colorado, in latitude 32° 29′ 45″, and, crossing this river, is marked by the dividing line between Upper and Lower California at the Bay of San Diego. The length of the northern frontier is 1,900 miles. *On the east,* by the Gulf of Mexico and the Atlantic Ocean; *on the west,* by the Pacific Ocean; and, *on the south,* by the Republic of Guatemala † and the territory of Balize, or British Honduras.

AREA.—Mexico contains, according to Busto's *Estadística de la República Mexicana,* 1,958,912 square kilometres, or 756,336 square miles. The *Statesman's Year-Book* gives the area at 743,948 square miles.

TOPOGRAPHY.—*Mountains.*—The Republic is traversed by the continuation of the Cordillera of South America, which in Mexico is called the Sierra Madre. It trends northwesterly from the Isthmus of Tehuantepec.

* Approximately.

† The long-disputed boundary question between Mexico and Guatemala has recently been decided in favor of the former.

This range has a moderate elevation in the southern States of Chiapas and Oaxaca; but in latitude 19°, the mean altitude is about 9,000 feet above the sea-level, and two peaks, Popocatepetl and Orizaba, rise to the great elevations of 17,720 feet and 17,200 feet respectively. The former mountain is the culminating point of North Amer-



Scene in Mexico.

ica. On the parallel of 21° the Cordillera becomes very wide, and divides itself into three ranges. The eastern branch runs to Saltillo and Monterey; the western branch traverses the States of Jalisco and Sinaloa, and subsides in Northern Sonora; while the central ridge extends through the States of Durango and Chihuahua, forming the watershed of the northern table-land. The range decreases in elevation in going northward.

Four peaks—viz., Popocatepetl, Iztaccihuatl, Orizaba, the Nevada de Toluca—rise above 15,000 feet; and three others—the Cofre de Perote, Ajusco, and the volcano of Colima—are upward of 11,000 feet in altitude. (The exact heights of these mountains are given in Part II.) Referring to these lofty peaks, Humboldt remarks:* "On the great table-land, the colossal mountains covered with perpetual snow seem, as it were, to rise out of a plain. The spectator confounds the ridge of the soft swelling land, the elevated plain, with the plain of the lowlands, and it is only from a change of climate, the lowering of the temperature under the same degree of latitude, that he is reminded of the height to which he has ascended."

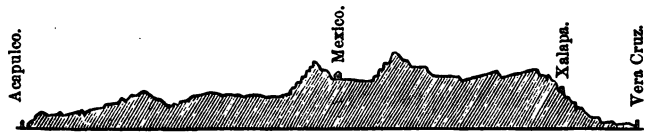
The country is divided into three zones—viz., the *tierra caliente,* or hot land; the *tierra templada,* or temperate land; and the *tierra fria,* or cold land. About one half of the surface of Mexico lies in the latter zone, the remainder of the Republic being almost equally divided between the *tierra templada* and *tierra caliente.* Geographers differ in defining the limits of the various zones, as is shown by the following table:

ZONES.	According to Humboldt.	According to Milner.
Tierra caliente.....	Up to 3,936 feet.	Up to 2,000 feet.
Tierra templada....	Up to 7,217 feet.	From 2,000 to 5,000 feet.
Tierra fria.....	Above 7,217 feet.	From 5,000 to 8,000 feet.

The coasts of the Republic are low, but the land rises gradually upon going toward the interior. The flat region of the eastern part of Mexico is wider than that of the western coast. In the former the *tierra caliente* has an average breadth of about 65 miles, while in the latter it varies from 40 to 70 miles.

* *Cosmos*, vol. v, p. 379.

The annexed cut shows an exaggerated profile of the country between the two oceans :



Mexican Table-land.

Mexico consists for the greater part of an elevated plateau having a mean height of about 6,000 feet above the sea-level. This plateau extends from the frontier of the United States to the Isthmus of Tehuantepec. It is widest in the latitude of the national capital, being about 350 miles at this point, and contracts gradually toward the south.

The principal table-lands of the northern Mexican plateau are that of Chihuahua, which lies north of latitude 24°, and east of the Conchos and Florida Rivers, and having an elevation of from 4,000 to 6,000 feet, and that of Anahuac, which is from 6,000 to 8,000 feet high. There are four distinct table-lands on the central plateau, as follows :

That of Toluca,	having a mean	elevation of	8,570 feet.
That of Tenochtitlan,	"	"	7,470 feet.
That of Aclopan,	"	"	6,450 feet.
That of Istla,	"	"	3,320 feet.

Two passes, about 500 miles apart, afford an outlet from the great table-land to the eastward—viz., that of Jalapa, through which Cortes built a road during the Conquest; and one at Saltillo, through which the United States troops reached the plateau during the Mexican War.

In referring to the uniform character of the surface of the great plateau of Mexico, Humboldt has remarked in the *Cosmos*, vol. v, p. 380, that the traveler may proceed in a four-wheeled carriage on the ridge of the table-land, from the City of Mexico to Santa Fé, a distance of at least

1,200 miles, without the advantage of artificially prepared roads.

RIVERS.—Mexico, on account of the narrow form of the continent, which prevents the collection of a great mass of water, contains very few navigable streams, the principal ones being the Goatzacoalcos and Pánuco Rivers. There are sand-bars at the mouths of many of the rivers, on which not more than three or four feet of water is to be found at low tide. Several streams could be made navigable at comparatively small expense. This fact would apply especially to the Rio de Santiago, the longest river in the Republic, according to Humboldt, who states that it is as long as the Elbe or Rhône, and that the grain from the States of Guanajuato and Jalisco could be thus transported to the western coast.

The following list gives the names and lengths of the principal rivers in Mexico :

	Miles.		Miles.
Rio de Santiago	542	Rio Pánuco	286
Rio de las Balzas	418	Rio de Sinaloa	277
Rio Yaqui	338	Rio de Ures	208
Rio Conchos	338	Rio de Culiacan	156
Rio de Grijalva	344	Rio de Goatzacoalcos	112
Rio Usumasinta	341		

LAKES.—There are many lakes on the Mexican plateau, most of which are extensive shallow lagoons, as in the valleys of Mexico and Parras. They are only the remains of large basins of water that formerly existed on the high plains of the Cordillera. The majority of these lakes have no outlet, and are accordingly filled with salt water. Owing to rapid evaporation, their surface has diminished appreciably since the time of the Spanish Conquest.

The Lagoon (*laguna*) of Terminos, on the coast of the Gulf of Campeche, is the largest in Mexico, but it is an arm of the sea, rather than a lake.

Strictly speaking, the Lake of Chapala, in the State of Jalisco, is the largest in the country. Lake Patzcuaro and Lake Cuitzeo are next in importance among the inland bodies of fresh water.

ISLANDS.—Mexico owns many islands on the west coast, the principal of which are San Ignacio, Angel de la Guarda, Salsipuedes, Tibaron, Carmen, and Cerralvo, in the Gulf of California; Cerros, Santa Margarita, and Las Tres Marias, in the Pacific Ocean. There are also several islands belonging to the Republic in the Gulf of Mexico, and off the coast of Yucatan, of which the most important are Carmen, in the former, and Mugeres, Cancun, and Cozumel, adjoining the latter.

Guano islands abound in the southern part of the Gulf of Mexico, some of them being claimed by citizens of the United States.

CLIMATE.—No country on the globe has a greater variety of climate than Mexico. The mean temperature of the three zones is as follows: for the *tierra caliente*, 77°; for the *tierra templada*, from 68° to 70°; and in the *tierra fria*, 62° Fahr. Sudden changes of temperature are uncommon in the latter, and likewise in the *tierra templada*, but they are frequent in the former zone. In Vera Cruz, the mercury often stands at 90° in the warm season, but, if the wind suddenly changes to the northward, it will sink to 65° Fahr. in a few hours.

The rainy season varies slightly in different parts of Mexico, but always occurs in summer. In Yucatan, Campeche, Tabasco, and Chiapas, it lasts from May to October, while the season begins a little later in the States of Oaxaca and Guerrero. In the latitude of the national capital, the rains fall between June 1st and October 1st, with occasional showers during the winter, especially in February, when the weather is very changeable. The Mexicans have a proverb which runs thus:

"Febrero loco,
Porque de todo,
Tiene un poco,"

which, being interpreted, means, February is a fool because it has a little of everything, *i. e.*, all kinds of weather.

According to Humboldt, the annual rainfall at the City of Mexico amounts to fifty-nine inches. In the northern part of Mexico, the rainy season is in the months of July, August, September, and half of October.

Snow falls in winter at an elevation of about 8,500 feet. According to Humboldt, the line of perpetual snow in Mexico is 15,091 feet above the level of the sea.*

The atmosphere on the Mexican plateau is very dry. This aridity proceeds from two causes: 1. The evaporation that occurs on great plains, which is increased by the high table-land; and, 2. The country is not sufficiently elevated for a considerable number of the mountains to penetrate the region of perpetual snow. Tourists are liable to suffer from thirst and chapped lips on arriving in the valley of Mexico, owing to the dryness of the climate. The nights are cold throughout the year on the great table-land north of the eighteenth parallel of latitude. In general, the temperature will sink as low as 45° Fahr., and occasionally the thermometer will fall to the freezing-point on the higher plains. The coldest part of the night is just before daybreak. In the vicinity of the snow-clad mountains, the sky is usually free from clouds in the early morning, but toward nine o'clock they rise gradually, and often cover the higher peaks for the remainder of the day. In the *tierra caliente*, and in the greater part of the *tierra templada*, a clear sky prevails, as a rule, during the entire year, except for a few hours of the day during the rainy season (*el tiempo de agua*). Strong winds are com-

* Under the equator the snow-line is estimated at 15,750 feet.

mon on the table-land, and the dust often rises in clouds on the sandy plains.

POLITICAL DIVISIONS.—New Spain was formerly divided into ten districts, viz.: The kingdoms of Mexico, New Galicia, and Leon; the colony of New Santander, and the provinces of Texas, Coahuila, New Biscay, Sonora, New Mexico, and the two Californias.

The country was subsequently partitioned into twelve intendancies and three provinces, as follows:

1. The province of New Mexico.
2. The intendancy of New Biscay, or Durango.
3. The province of New California.
4. The province of Old California.
5. The intendancy of Sonora.
6. The intendancy of San Luis Potosi.*
7. The intendancy of Zacatecas.
8. The intendancy of Guadalajara.
9. The intendancy of Guanajuato.
10. The intendancy of Valladolid.
11. The intendancy of Mexico.†
12. The intendancy of Puebla.
13. The intendancy of Vera Cruz.
14. The intendancy of Oaxaca.
15. The intendancy of Merida, or Yucatan.

The Republic of Mexico is now divided into twenty-seven States, one Territory, and one Federal District. The several States are subdivided into 48 departments, 170 districts, 48 cantons, 110 counties, 1,411 municipalities, 146 cities, 378 towns, 4,886 villages, 872 hamlets, 6 missions, 5,869 haciendas, and 14,705 ranches.

The populations of the several States are given in the chapter on the census. It is worthy of remark, however, that Jalisco has the largest number of inhabitants. The

* The largest as regards area.

† The largest in population.

following is a list of the Mexican States, classified according to superficial area :

	Square kilometres.		Square kilometres.
Chihuahua	227,716	Michoacan de Ocampo	55,693
Sonora	209,694	Chiapas	43,930
Lower California (Territory)	152,847	Nuevo Leon	38,156
Coahuila de Zaragoza	152,517	Tabasco	32,935
Jalisco	114,896	Puebla	31,120
Durango	110,463	Mexico	25,972
Yucatan	84,585	Hidalgo	21,693
Tamaulipas	75,191	Guanajuato	20,276
San Luis Potosi	71,210	Querétaro de Ortcaga	8,300
Vera Cruz-Llave	71,116	Colima	7,136
Oaxaca	70,838	Aguascalientes	5,776
Sinaloa	69,211	Morelos	4,536
Zacatecas	68,596	Tlaxcala	3,898
Guerrero	68,568	Federal District	231
Campeche	67,539		
Total			1,958,912

IV.

Literature.

UP to the present time Mexican literature has occupied a subordinate position compared to that of Europe and the United States. The people of Mexico are acquainted more extensively with French literature than with that of any other country. Prieto is the great national poet; while Cuellar, Mateos, Contreras, Paz, Peza, Payno, Altamirano, Justo Sierra, Carpio, and Riva Palacio are the best-known novelists. The latter author is also a dramatic writer.

The prevailing style of books that are read in the Republic are Spanish translations of French and English volumes. Books are admitted free of duty, and many of the works used in the country are printed in the Spanish language at Paris.

V.

Ruins.

EXCEPTING the *teocallis*, or pyramids, all of the important ruins in Mexico are situated in the States of Yucatan, Chiapas, and Oaxaca.

A discussion of the comparative ages of these ancient remains, together with the most plausible theories as to their origin, would be foreign to the purpose of this volume. Suffice it to say, that the Mexican antiquarians of the present day consider the ruins of Uxmal, in Northern Yucatan, to be the oldest; those of Palenque, in Chiapas, next in rank; and Mitla, in Oaxaca, third in point of age.

It is worthy of remark that neither Palenque nor Mitla (the former being buried in a dense forest), was known to the outside world until a comparatively recent period—*i. e.*, about 1750; but the remains in Yucatan were familiar to Europeans long before.

These ruins were built of hewn stone, and all writers have referred to the skill in architecture and workmanship exhibited in them. The ordinary dwelling-houses must have been made chiefly of wood, or of some other material that perished long ago, for at the present time no traces of them are visible.

Great cities and temples are to-day concealed by thick forests, and the traveler can not form a correct idea of their original size. It is to be regretted that, with the present limited facilities for traveling, many of the ruins of Southern Mexico are difficult of access. The principal remains lie remote from the sea-coast and also from the lines of railroad.

Let us begin with the ruined edifices of Yucatan, and describe the places in their geographical and supposed historical order.

Baldwin, in *Ancient America*, p. 101, says: "Near the ruins, . . . in Yucatan, are frequently found the remains of many finely-constructed *aguadas*, or artificial lakes. The bottoms of these lakes were made of flat stones laid in cement, several layers deep. In Yucatan traces of a very ancient paved road have been found. This road ran north and south, and probably led to cities in the region now covered by the great wilderness. It was raised above the graded level of the ground, and made very smooth."

The same author, on pp. 125, 126, states: "The remains of ancient cities are abundant in the settled portion of Yucatan which lies north of the great forest. Charnay found 'the country covered with them from north to south.' Stephens states, in the preface to his work on Yucatan, that he visited 'forty-four ruined cities or places,' in which such remains are still found, most of which were unknown to white men, even to those inhabiting the country. . . .

"Previous to the Spanish Conquest, the region known to us as Yucatan was called Maya. It is still called Maya by the natives among themselves.* . . .

"At that time the country was occupied by the people still known as Mayas. . . . Yucatan was then more populous than at present. The people had more civilization, more regular industry, and more wealth. They were much more highly skilled in the arts of civilized life. They had cities and large towns. . . . This peninsula had been the seat of an important feudal monarchy, which arose probably after the Toltecs overthrew the very ancient kingdom of Xibalba. It was broken up by a rebellion of the feudal lords about a hundred years previous to the arrival of the Spaniards. According to the Maya chronicles, its downfall occurred in the year 1420. Mayapan, the capital of this kingdom, was destroyed at that time, and never afterward inhabited."

* The Maya language is spoken in Yucatan at the present day.—A. R. C.

The most important ruins are found at Mayapan, Uxmal, and Chichen-Itza, in the northern part of the peninsula. We will describe them in the following order:

MAYAPAN.

The remains of this ancient capital lie about thirty miles south of Merida. They are scattered over a broad plain. The principal edifices are the great mound and a circular stone structure. The former is sixty feet in height, and has a base that is one hundred feet square. Four stairways, twenty-five feet in width, lead to the summit, which consists of a simple stone platform fifteen feet square. The latter building is twenty-five feet in diameter, and stands on a sloping foundation thirty-five feet in height. Two rows of columns, without capitals, and lying eight feet apart, are seen on the southwestern side of it. Brasseur de Bourbourg ranks several of the foundations of the Mayapan edifices with the oldest seen at Palenque.

About forty miles south of Mayapan are found the far-famed ruins of

UXMAL.

Stephens says that the Uxmal remains are worthy to stand side by side with those of Egyptian and Roman art.* Baldwin, in *Ancient America*, pp. 131–136, describes Uxmal as follows: "The ruins in Uxmal have been regarded as the most important in Yucatan, partly on account of the edifices which remain standing, but chiefly because they have been visited and explored more than the others. . . . The area covered by its remains is extensive. Charnay makes it a league or more in diameter, but most of the structures have fallen, and exist only in fragments scattered over the ground. . . .

* *Incidents of Travel in Central America, Chiapas, and Yucatan*, vol. ii, p. 430.

"The most important of those remaining was named 'Casa del Gobernador' by the Spaniards. It is 320 feet long, and was built of hewn stone laid in mortar or cement. The faces of the wall are smooth up to the cornice. Then follows, on all four sides, 'one solid mass of rich, complicated, and elaborately sculptured ornaments, forming a sort of arabesque.' . . . This building has eleven doorways in front, and one at each end, all having wooden lintels which have fallen. The two principal rooms are 60 feet long, and from 11 to 13 feet wide. This structure is long and narrow. . . . It stands on the summit of one of the grandest of the terraced foundations. This foundation, like the others, is pyramidal. It has three terraces. The lowest is 3 feet high, 15 wide, and 575 long; the second is 20 feet high, 275 wide, and 545 long; the third, 19 feet high, 30 wide, and 360 long. Structures formerly existed on the second terrace, remains of which are visible. . . .

"Another important edifice at Uxmal has been named 'Casa de las Monjas'—House of the Nuns. It stands on a terraced foundation, and is arranged around a quadrangular courtyard 258 feet one way and 214 the other. The front structure is 279 feet long, and has a gateway in the center, 10 feet 8 inches wide, leading into the court, and four doors on each side of it. The outer face of the wall, above the cornice, is ornamented with sculptures. . . . All the doorways, save those in front, open on the court.* . . .

"Other less important edifices in the ruins at Uxmal have been described by explorers, some of which stand on high pyramidal mounds; and inscriptions are found here, but they are not so abundant as at Palenque and Copan."

The remains at Chichen-Itza are similar to those at Uxmal. They are situated a few leagues east of Mayapan,

* Stephens has remarked that there are no idols, nor stuccoed figures, nor carved tablets at Uxmal.

in northern Yucatan. The principal buildings are the "church," the palace of the monks, the red house or *casa colorada,* and the "gymnasium," or tennis-court. In one of the edifices are found rooms whose walls are covered with picture-writing. Some of them are ornamented with figures of serpents.

There are other ruins of importance at Izamal, Labna, Zayi, and Xcoch, in the northern and central portions of Yucatan, but they are of the same general character as those above mentioned.

One remarkable ruin is found at Ake, in the northern part of the State. It was once a massive structure, but at the present day only thirty-six columns in three parallel rows remain. They are about fifteen feet high and four feet square. Ruins may also be seen on the island of Cozumel. (*Vide* Section I in Part second for description of routes.)

PALENQUE.

Baldwin, in *Ancient America,* pp. 104–106, thus describes the ruins at this place: "No one can tell the true name of the ancient city now called Palenque. It is known to us by this name because the ruins are situated a few miles distant from the town of Palenque, now a village, but formerly a place of some importance. . . . More than two hundred years passed after the arrival of the Spaniards before their existence became known to Europeans. They were discovered about the year 1750.

"Since that year decay has made some progress in them. Captain del Rio, who visited and described them in 1787, examined 'fourteen edifices' admirably built of hewn stone, and estimated the extent of the ruins to be 'seven or eight leagues one way (along the River Chacamas), and half a league the other.' He mentions 'a subterranean aqueduct of great solidity and durability, which passes under the largest building.' . . .

"The largest known building at Palenque is called the 'Palace.' It stands near the river, on a terraced pyramidal foundation, 40 feet high and 310 feet long, by 260 feet broad at the base. The edifice itself is 228 feet long, 180 wide, and 25 feet high. It faces the east, and has 14 doorways on each side, with 11 at the ends. It was built entirely of hewn stone, laid with admirable precision in mortar, which seems to have been of the best quality. A corridor 9 feet wide, and roofed by a pointed arch, went round the building on the outside; and this was separated from another within of equal width.

"The 'Palace' has four interior courts, the largest being 70 by 80 feet in extent. These are surrounded by corridors, and the architectural work facing them is richly decorated. Within the building were many rooms. From the north side of one of the smaller courts rises a high tower, or pagoda-like structure, 30 feet square at the base, which goes up far above the highest elevation of the building, and seems to have been still higher when the whole structure was in perfect condition. The great rectangular mound used for the foundation was cased with hewn stone, the workmanship here, and everywhere else throughout the structure, being very superior. The piers around the courts are 'covered with figures in stucco, or plaster, which, where broken, reveals six or more coats or layers, each revealing traces of painting.' This indicates that the building had been used so long before it was deserted that the plastering needed to be many times renewed. There is some evidence that painting was used as a means of decoration; but that which most engages attention is the artistic management of the stone-work, and, above all, the beautifully executed sculptures for ornamentation.

"Two other buildings at Palenque, marked by Mr. Stephens, in his plan of the ruins, as 'Casa No. 1' and 'Casa No. 2,' are smaller, but in some respects still

more remarkable. The first of these, 75 feet long by 25 wide, stands on the summit of a high truncated pyramid, and has solid walls on all sides save the north, where there are five doorways. Within are a corridor and three rooms. Between the doorways leading from the corridor to these rooms are great tablets, each 13 feet long and 8 feet high, and all covered with elegantly-carved inscriptions. A similar but smaller tablet, covered with an inscription, appears on the wall of the central room.

"'Casa No. 2' consists of a steep and lofty truncated pyramid, which stands on a terraced foundation, and has its level summit crowned with a building 50 feet long by 31 wide, which has three doorways at the south, and within a corridor and three rooms. This edifice, sometimes called 'La Cruz,' has, above the height required for the rooms, what is described as 'two stories of interlaced stucco-work, resembling a high, fanciful lattice.' Here, too, inscribed tablets appear on the walls; but the inscriptions, which are abundant at Palenque, are by no means confined to tablets. As to the ornamentation, the walls, piers, and cornices are covered by it. Everywhere the masterly workmanship and artistic skill of the old constructors compel admiration; Mr. Stephens going so far as to say of sculptured human figures found in fragments: 'In justness of proportion and symmetry they must have approached the Greek models.'"

It is probable that more buildings will be found at Palenque when the ruins have been fully explored. Mr. Stephens, referring to the dense vegetation, says: "Without a guide, we might have gone within a hundred feet of the buildings without discovering one of them." On account of the great abundance of inscriptions at Palenque, which have not thus far been deciphered, these ruins are considered to be very important by archæologists. (For routes to Palenque, see pp. 150–156.)

MITLA.

Baldwin, in *Ancient America*, pp. 117–122, describes these ruins as follows:

"The ruins called Mitla are in the Mexican State of Oaxaca, about twelve leagues east from the city of Oaxaca. They are situated in the upper part of a great valley, and surrounded by a waste, uncultivated region. At the time of the Spanish Conquest they were old and much worn by time and the elements, but a very large area was then covered by remains of ancient buildings. At present only six decaying edifices and three ruined pyramids, which were very finely terraced, remain for examination, the other structures being now reduced to the last stage of decay. . . .

"Four of the standing edifices are described by Dupaix as 'palaces,' and these, he says, 'were erected with lavish magnificence; . . . they combine the solidity of the works of Egypt with the elegance of those of Greece.' And he adds: 'But what is most remarkable, interesting, and striking in these monuments, and which alone would be sufficient to give them the first rank among all known orders of architecture, is the execution of their mosaic relievos—very different from plain mosaic, and consequently requiring more ingenious combination, and greater art and labor. They are inlaid on the surface of the wall, and their duration is owing to the method of fixing the prepared stones into the stone surface, which made their union with it perfect.' . . .

"The general character of the architecture and masonry is much like that seen in the structures at Palenque, but the finish of the workmanship appears to have been more artistic and admirable. These ruins are remarkable among those of the country where they are found. All who have seen them speak much as Dupaix speaks of the perfection of the masonry, the admirable design and finish

of the work, and the beauty of the decorations. Their beauty, says M. Charnay, can be matched only by the monuments of Greece and Rome in their best days. One fact presented by some of the edifices at Mitla has a certain degree of historical significance. There appears to be evidence that they were occupied at some period by people less advanced in civilization than their builders. . . .

"Two miles or more away from the great edifices here mentioned, toward the west, is the 'Castle of Mitla.' It was built on the summit of an isolated and precipitous hill of rock, which is accessible only on the east side. The whole leveled summit of this hill is inclosed by a solid wall of hewn stone, 21 feet thick and 18 feet high. This wall has salient and retiring angles, with curtains interposed. On the east side it is flanked by double walls. Within the inclosure are the remains of several small buildings. The field of these ruins was very large three hundred years ago. At that time it may have included this castle."

Humboldt, in his *Political Essay on New Spain*, vol. ii, pp. 239, 240, has described these remains as follows:

"The village of Mitla was formerly called Miguitlan, a word that means, in the Mexican language, a place of sadness. The Tzapotec Indians call it *Leoba*, which signifies tomb. . . . The palace, or rather the tombs of Mitla, form three edifices symmetrically placed in an extremely romantic situation. The principal edifice is in the best preservation, and is nearly 130 feet in length. A stair formed in a pit leads to a subterraneous apartment of 88 feet in length and 26 feet in breadth. This gloomy apartment is covered with the same *grecques* which ornament the exterior walls of the edifice. But what distinguishes the ruins of Mitla from all the other remains of Mexican architecture is six porphyry columns, which are placed in the midst of a vast hall, and support the ceiling. These columns, almost the only ones found in the new continent, bear strong marks

of the infancy of the art. They have neither base nor capitals. . . . Their total height is 16½ feet, but their shaft is of one piece of amphibole porphyry. Broken-down fragments, for ages heaped together, conceal more than one third of the height of these columns. . . . The distribution of the apartments in the interior of this singular edifice bears a striking analogy to what has been remarked in the monuments of Upper Egypt drawn by M. Denon and the *savans*, who compose the institute of Cairo. M. de Laguna found in the ruins of Mitla curious paintings representing warlike trophies and sacrifices." . . .

Jeffreys states that the buildings at Mitla were probably erected by either the Mixtec or Tzapotec Indians.—(*Vide* p. 169.)

THE PYRAMIDS.

The *teocallis* may now be mentioned. They are to be found principally at Cholula, San Juan Teotihuacan, and Papantla. They may be described in the following order:

Cholula.

This town lies seven miles west of the city of Puebla. Its pyramid is by far the largest, oldest, and most important in Mexico. The original dimensions were as follows: Height, 177 feet; horizontal width of the base, 1,423 feet; and area, 45 acres. It is built of alternate strata of brick and clay, and the sides correspond to the direction of the meridians and parallels. At present three terraces can be distinctly seen, and the outlines of two others may be traced. A winding road, which is paved with stone, leads up to the summit. The latter is about 200 feet square. It affords a fine view of the valley of Puebla. A chapel has been erected by the Mexicans on the platform of this great mound. It is built of brick and stone, with a dome and two towers; and the interior contains ornamental frescoes and decorations. It is called *San Tuariol de los Remedios.* Some vegetation

is seen on the pyramid. It consists of the cactus, *pito,* and a few *pirù* trees. Several writers have suggested that the founders of the mound at Cholula may have had some design in building it near the lofty volcano of Popocatepetl,



Aztec Temple.

or "the smoking mountain." This primitive race may have been fire as well as serpent worshipers.

Unfortunately the great temple of Cholula has been partially destroyed. A few years ago a cut was made in the western side of it for a railroad track !—(*Vide* p. 173.)

San Juan Teotihuacan.

The *teocallis* at this town rank next to Cholula in point of age. The word "Teotihuacan" means the habitation

of the gods. It is now a small village, though it was once a flourishing city, and the rival of Tula, the great Toltec capital. The two principal pyramids were dedicated to *Tonatiuh*, the Sun, and to *Meztli*, the Moon.* The former is the larger, its height being 180 feet, and the length of the base 682 feet. Its platform is to-day about 75 feet square, and the middle point is marked by a modern cylindrical monument of stone, about 5 feet high and 6 feet in diameter. The summit of this pyramid is said to have been crowned with a temple, in which was a gigantic statue of its presiding deity, the Sun, made of one entire block of stone, and having a breastplate of gold and silver. Three terraces are now visible on this larger mound. It is constructed of blocks of basalt and trachyte rock.

About half a mile to the northward of the pyramid of the Sun is that dedicated to the Moon. The observer may distinguish two terraces on the latter. The summit is about 20 by 40 feet. Traces of an ancient tomb were formerly visible on it. A cross, standing on a pedestal about 12 feet high, has been erected recently † at the center of the platform. It is reached by a winding pathway on the south side. The building materials of this mound resemble those of the larger one. M. Charnay, a recent explorer, is said to have found an idol buried in the interior. The same traveler made a cut into this pyramid to settle the question whether the *teocallis* were hollow.‡ He dug a gallery half way through, and found the interior to be solid. We submit, however, that this experiment has not solved the problem in general.

A great number of smaller pyramids are seen around the two principal ones. Few exceed twenty-five feet in height. According to tradition, they were dedicated to the stars, and served as sepulchres for the illustrious men of the

* *Vide Prescott*, vol. ii, p. 388. † On February 11, 1881.

‡ According to tradition these pyramids were hollow.

nation. The plain on which they are built was called *Micoatl,* or "Path of the Dead." Arrow-heads and fragments of blades of *itztli* or obsidian are still abundant at these mounds. They attest the warlike character of the aborigines. (*Vide* p. 174.)

Papantla.

This village lies in the State of Vera Cruz, about fifty miles north of Jalapa. (*Vide* p. 155.) The pyramid is situated in a dense forest about two leagues from Papantla. It was unknown to the first conquerors, as the Indians for centuries concealed this monument from them. It possesses great antiquity, and was only discovered accidentally by some hunters in 1780. This pyramid was not built of bricks or clay mixed with whinstones, like those already described, but was made of immense stones of porphyry, in the seams of which mortar is distinguishable. Many of these stones are covered with hieroglyphics. Among other figures are carvings of serpents and crocodiles. This edifice is remarkable, not so much for its size, as for its symmetry, the polish of the stones, and the great regularity of their cut. The base of the pyramid is an exact square, each side being 82 feet long. The perpendicular height is about 60 feet. Like all Mexican *teocallis,* this mound is composed of several stages. A huge stairway of fifty-seven steps leads to the platform or top of the pyramid, where the human victims were sacrificed. (The manner of sacrifice is described on p. 186.)

Humboldt, in his great work on New Spain, refers to the analogy of the brick monuments of Anahuac to the temple of Belus at Babylon, and to the pyramids near Sakhara in Egypt. On page 195 of vol. ii he says: "There are in Mexico pyramids of several stages, in the forests of Papantla, at a small elevation above the level of the sea, and in the plains of Cholula and Teotihuacan, at elevations

surpassing those of our passes in the Alps. We are astonished to see in regions most remote from one another, and under climates of the greatest diversity, man following the same model in his edifices, in his ornaments, in his habits, and even in the form of his political institutions."

The same author gives the following comparative table of the great pyramids of the world. It will be seen that in the mound of Cholula the length of the base to the perpendicular height is as 8 to 1, while in that of Ghizeh this proportion is nearly 8 to 5 :

Stone Pyramids.

French feet.*	Cheops.	Cephren.	Mycerinus.
Height	448	398	162
Length of base	723	655	280

Brick Pyramids.

French feet.	Of five stages in Egypt, near Sakhara.	Of four stages in Mexico.	
		Teotihuacan.	Cholula.
Height	150	171	172
Length of base	210	645	1,355

There are also *teocallis* at Misantla, Tusapan, Mapilca, and Casones in the northern part of the State of Vera Cruz.

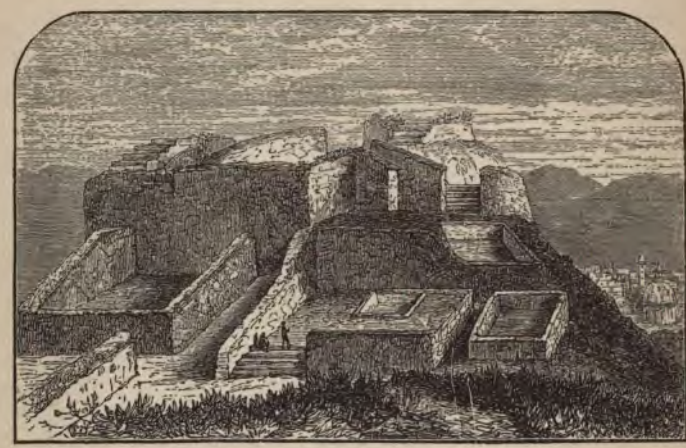
These pyramids are scattered over Central and Eastern Mexico. Several writers on archæology believe that they were built by the Toltecs, who are supposed to have been the authors of the mounds in Ohio.

NORTHERN MEXICO.

Ancient remains are rare north, as well as west, of the valley of Mexico. Toltec ruins are found at Tula, which

* A French foot equals 1·066 English feet.

lies about fifty miles north of the capital. The ruins on the northern part of the table-land consist of communal dwellings, similar to those of the Pueblo Indians of New Mexico. They were built of several stories, one being ranged above the other. There were no doors on the first floor, and the upper stories were reached by means of ladders. The roofs were commonly flat. These edifices were sometimes built of stone, but wood and *adobe*, or sun-dried brick, have been more frequently used.



Toltec Palace.

This class of ruins is common in the State of Chihuahua, and also in the Territories of Arizona and New Mexico. The reports of the Pacific Railroad surveys describe many of these ancient towns. Some of them are still inhabited, as Taos, Zuni, and Moqui. If the traveler approaches Mexico by either of the railroads in Colorado or Arizona, he will pass within a few miles of some of the "Pueblo" dwellings. The Indians of the New Mexican *pueblos* resemble those of Mexico in stature, physiognomy, and

habits. Apparently they are the same race of people, and it is not improbable, that their ancestors built some of the magnificent edifices that remain in the southern part of the country.

Tourists, who are not specially interested in Mexican archæology, are recommended to confine themselves to visiting the ruins of Mitla, Cholula, and San Juan Teotihuacan. The former will soon be within twenty miles of a line of railway, and the other places are within an hour's walk of it.

For additional information on the ancient remains of Mexico, consult the following books:

Humboldt, *Political Essay on New Spain.*

Kingsborough, *Mexican Antiquities.*

Dupaix, *Antiquités mexicaines.*

Prescott, *Conquest of Mexico.*

Baldwin, *Ancient America.*

Stephens, *Incidents of Travel in Central America, Chiapas, and Yucatan.*

Also the works of Catherwood, Waldeck, Del Rio, Brasseur de Bourbourg, and Charnay.

VI.

Hotels and Restaurants.

Most of the hotels in Mexico are kept on the European plan; but those of Monterey and other towns near the northern frontier are conducted according to the American system. Two-storied buildings are generally used for hotel purposes; and in recent years a few convents have been altered for this kind of business. The inns are often called after ex-presidents or generals in the army. Many of them bear the name of the illustrious patriot Hidalgo.

In the large cities men are commonly employed to take

care of bed-rooms, while in the smaller towns one meets with chambermaids.

Hotels are not so abundant in Mexico as in the United States, and the accommodations of the former are much inferior to those of the latter. The natives are not much given to traveling, owing to the difficulty and expense of making long journeys. When visiting a strange town they usually stay at the house of a friend. There are cities of 15,000 inhabitants, remote from the regular lines of travel, where no inn is to be found. The General Diligence Company controls a great many taverns throughout the central portions of the country. Mexican hotels are of two classes—those for tourists, and those for both persons and live-stock, such as horses or horned cattle. The latter are called *mesones* and *posadas*.

Bath-rooms are rarely found in hotels. There are, however, excellent bath-houses in the principal cities, which are often within two or three minutes' walk of the principal hotels.*

English is rarely spoken at the inns, but French is generally known at the larger hotels and restaurants. Many of the proprietors are Spaniards or Frenchmen; and there is a great opening for Americans in this branch of business.

The modern conveniences, such as hot-air furnaces, water-pipes and set bowls, electric bells, and gas, are almost unknown. It is said that there is not a single fireplace in any building in Mexico.† The natives believe that the artificial heating of rooms in the rarefied air of the table-land is prejudicial to health. Public parlors are very rarely found in the hotels.

The charge at first-class houses throughout the country is from $2 to $2.50 per day. In the capital the rates are a

* The finest bathing establishments in Mexico are in San Luis Potosi, Orizaba, and Puebla. Those of the national capital are not first class.

† The author did not see nor hear of any.

little higher. The best hotels and restaurants, generally named in the order of their merit, are given in Part Second. In Mexico City a good *table d'hôte* dinner can be had in the restaurants for $1. Elsewhere the usual price for dinner is four *reales*, or fifty cents; and in the villages the cost is as low as two *reales* for a meal. It is the custom to give waiters and servants a fee. A half *real* (*medio*) is sufficient. A cup of coffee or chocolate, with bread, is commonly served for one *real*. A glass of spirits, wine, or beer, costs the same sum.

The Mexicans use the word "*fonda*" as synonymous with restaurant, and "*fondita*" is similar to a café, the latter term being frequently employed. In the "provincial" *fondas*, it is customary to salute persons at the table, when entering or leaving the room, whether acquainted or not.

In the rural districts and in the mining towns, goat's milk is often used at the taverns.

Fresh vegetables, excepting potatoes, are rarely served at the restaurants. Oranges and bananas are generally the only kinds of fruit to be met with, although the country affords many varieties. Tea is not usually taken; and pies, tarts, cakes, and puddings, are almost unknown at the hotels and cafés. Dessert consists, as a rule, of *dulce*, which means something sweet, such as jams, preserved fruit, etc

The natives usually eat *tortillas*, or corn-cakes, and *frijoles*, or brown beans. The former are found only in the country and small towns, but the latter are served at all hotels and restaurants.

A great deal of pepper and grease is used in Mexican cookery. Even boiled rice is saturated with melted lard. Beef and mutton, as well as poultry, are generally to be had at breakfast and dinner in the *fondas* throughout the Republic. The sugar used comes in loaves directly from the mills, and is broken up by hand into small pieces. A small quantity of refined granulated sugar is imported.

The following list* of the most common dishes may be of service to the traveler :

Caldo, broth ; *sopa,* boiled rice.
Bacalao, codfish ; *bagre,* a kind of fish.
Carne, beef ; *carnero,* mutton.
Ternera, veal.
Juajalote, turkey.
Pollo, chicken.
Chile con carne, boiled beef, spiced.
Blanquillos, or *huevos,* eggs.
Huevos tibios, soft-boiled eggs.
Huevos duros, hard-boiled eggs.
Huevos fritos por agua, poached eggs.
Huevos fritos, fried eggs.
Tortilla de huevos, omelette.
Chile relleno is a fried green-pepper, stuffed with mince-meat and coated with eggs.

Many kinds of bread are made in Mexico, the principal of which are :

Pan de agua, "water" bread.
Pan de azúcar, "sugar" bread.
Pan de dulce, "sweet" bread.
Pan de huevos, "egg" bread.
Pan de leche, "milk" bread.
Pan de manteca, "lard" bread.

VII.

Passport.

At present no passport is necessary for traveling in Mexico.

* This list is not intended to supplement the vocabulary at end of Part Second.

VIII.

Custom-Houses.

According to the laws of Mexico, the examination of baggage will be made "liberally and with prudence and moderation." In general the tourist will be treated politely by the customs officers. As regards wearing-apparel and jewelry for personal use, the amount of that which will not be subject to duty is left entirely to the discretion of the Government officials, taking into consideration, however, the character and social position of the traveler.

At present the following "extra" articles are admitted free of duty:

Two watches with their chains.

One hundred cigars.

Forty small boxes of cigarettes.

Half kilogramme of snuff.

Half kilogramme of smoking tobacco.

One pair of pistols with accessory and with two hundred charges.

A rifle, a gun or fowling-piece, with accessory and with two hundred charges.

One pair of musical instruments, excepting piano-fortes and organs.

Other objects not included in the foregoing list are, of course, subject to the duties fixed by the Mexican tariff. (See chapter on Duties.)

IX.

Commerce.

The chief exports of Mexico are: Gold, silver, copper ore, coffee, cochineal, vanilla, indigo, hides, hemp,

mahogany and other woods. The staple imports are cotton, linen, and woolen manufactures, wrought iron, and machinery.

In 1875-'76 the imports amounted in value to $28,485,000, and the exports to $25,435,000, of which $15,000,000 was silver.

The foreign commerce in 1879–'80 was as follows:

To the United States	$13,416,600
To Great Britain	11,037,594
To France	5,194,741
To Germany	1,498,734
To Spain	1,009,368
To South America	506,488
	$32,663,525

Of this sum the main exports were as follows:

Silver	$19,823,397
Gold	1,180,815
Copper	48,692
Minerals	483,587
Building woods	1,597,599
Other merchandise	9,529,435
	$32,663,525

The following table shows the trade of the United States with Mexico for the three fiscal years ending June 30, 1879, 1880, and 1881:

	1879.	1880.	1881.
Exports	$6,761,284	$7,869,864	$11,172,738
Imports	14,047,819	16,325,417	17,454,126
Total	$20,809,103	$24,195,281	$28,626,864

It will be seen that this table shows an increase of trade of $7,817,761 in two years.

Smuggling is practiced extensively along the northern frontier of Mexico.

Competent judges estimate that the annual loss to the Government from this source amounts to $3,000,000. It is said that even some of the highest officials are implicated in schemes for smuggling.

According to the *Official Journal*, the total value of exports for the fiscal year of 1882–'83 was $41,807,595, of which about $16,500,000 were sent to the United States, and $17,000,000 to England. One half of the exports were shipped from Vera Cruz. The amount of sugar and tobacco exported was only $617,000 in value.

MOVEMENTS OF VESSELS IN MEXICAN PORTS IN 1879–'80.*

Flag.	No. of vessels.
Mexican	2,227
United States	332
English	162
French	115
German	112
Spanish	64
Norwegian	48
Danish	33
Dutch	12
Other flags	26
Total	3,131

The total tonnage of vessels entered can be estimated at 1,000,000. The Mexican merchant marine consists of 421 vessels engaged in foreign trade, and 847 barks employed in coasting. A Mexican line of steamers to England and Italy is about to be established. (For description, see chapter on Traveling.)

* Translated from the *Almanach de Gotha.*

X.

Army and Navy.

Army.—Estimated yearly cost of maintenance, $8,000,000.

The *personnel* of the army is as follows ·

	Officers.	Men.	Total.
Infantry, 20 battalions	740	12,200	12,940
Cavalry, 14 regiments	518	4,850	5,368
Artillery, 6 brigades and 5 batteries	180	1,645	1,825
Coast-guard	22	71	93
Rurales—i. e., mounted patrols	150	1,692	1,842
Invalids	19	280	299
Total	1,629	20,738	22,367

Each State has also militia of its own, which takes the place of a police force to a considerable extent. All the prison-doors are guarded by soldiers, although the keepers are civilians.

The soldiers are armed with Remington rifles and carbines; and the sabres used are chiefly of American manufacture. The dress-uniform is of a dark blue.

Several of the officers of the Mexican army are reformed brigands. In some States, where powerful bands of *banditti* defied the authorities for years, the Government has finally dispersed them by giving the leader a military commission, and then sending him to fight against his old comrades.

A large number of the officers who were in the army before 1876 are now on the retired list, with pay. They retain their rank, without power. The present (Liberal) Government deems this policy advisable.

It may be remarked that Don Agustin Iturbide, the

grandson of the Emperor Iturbide, and adopted heir of Maximilian, holds a commission in the republican army. He studied at Tacubaya, the seat of the National Military Academy.

Navy.—The navy consists of four gunboats.

XI.

Duties.

AN elaborate description of the Mexican tariff would be out of place in this guide-book. Suffice it to say, that there is an import duty on almost everything, except agricultural and scientific instruments and books. Up to November 1, 1882, machinery was admitted free. It now bears a duty of fifty cents per hundred kilogrammes (220 pounds). Since November 1, 1881, there has been an additional "package" duty on merchandise imported into the Republic. Nearly all articles are taxed heavily, especially carriages, buggies, and wagons. The traveler, in entering the country by his own carriage (either *via* the Rio Grande or otherwise), is obliged to give a bond to secure the amount of duties on the vehicle, in case he intends to return to the United States. If the bond is not filed, the regular import duty must be paid.

It may be remarked that the Government pays the subsidies to the various railroads out of the customs duties. An amount varying from four to six per cent of the customs receipts is pledged, and revenue-bonds are issued bearing no interest (see chapter on railroads). At present negotiations for a reciprocity treaty are pending between the United States of America and Mexico. It is said that an extensive revision of the Mexican tariff is about to be made, by which the duties will be considerably reduced.

XII.

Taxes.

In ancient Mexico the public tax was often paid in agricultural produce. The taxes are now levied both by the National and State Governments. There are also special taxes for railways and other purposes. Every State has its own tax levy, which varies from year to year. The Federal tax is usually one quarter of the tax paid to the State. It is oftentimes very difficult to collect the former, as the Republic can not sue the State Government for any deficiency that may exist. A Federal treasurer, called the *jefe de hacienda*, resides in each of the several States, to gather the taxes due the General Government. Taxation is very heavy throughout the country, and especially in the districts adjoining the route of the American railroads.

XIII.

Finance.* (In Dollars.)

Receipts.—Budget, 1882–'83.

Custom-houses	15,000,000
Custom-house of Mexico and excise	2,000,000
Stamps	4,000,000
Direct tax	900,000
Mint	690,000
Receipts from former fund for public education	60,000
Post-offices and telegraphs	650,000
Lotteries	800,000
Other receipts	3,000,000
Total	27,100,000
Receipts from the several States	7,500,000
Grand total	34,600,000

* Translated from the *Almanach de Gotha.*

Expenditures.

Legislative power	1,071,712
Executive power	48,832
Supreme Court	389,554
Foreign affairs	336,280
Interior	3,235,118
Justice and public education	1,215,473
Public works (*Fomento*)	7,551,683
Treasury	4,648,377
War and navy	8,514,478
Total	27,011,507
Expenditures of the several States	7,500,000
Grand total	34,511,507

XIV.

Public Debt.

1. Foreign debts:		
English debt of Oct. 14, 1850	$89,252,360	
English convention of Dec. 4, 1851.	5,900,025	
Spanish convention of Dec. 6, 1853.	1,231,775	
Spanish convention of Nov. 12, 1853	5,553,287	
Indebtedness to the United States of July 4, 1868	2,775,123	
		$104,712,570
2. Internal debt		40,241,215
Total*		$144,953,785

The Mexican Government does not recognize the debts as stated by the English and Spanish conventions. All the foreign debts, except that due the United States, are about to be consolidated, and bonds bearing three per cent interest, to be receivable for Government lands, adjudicated

* Translated from the *Almanach de Gotha.*

property, and letters patent, will be issued by the Executive to pay off the indebtedness. The details of the settlement involving the amount recognized are left entirely to the Executive.

The sum of $300,000 is paid annually out of the National Treasury to the United States, on account of the debt of July 4, 1868.

A dispatch from the City of Mexico, dated July 28, 1883, reads as follows:

"It is understood that the President has sent to Carlos Rivas, in London, a power of attorney to settle with the British bondholders, with certain modifications. Bonds to the amount of only £15,000,000 are to be issued; the additional £4,700,000 in bonds, first agreed upon for the expenses of the bondholders' committee, will not be issued. The bonds will be signed in Mexico. The coupons will begin bearing interest on July 21, 1884."

XV.

Money—Coins.

In the Aztec empire, current money consisted of bits of tin, bags of cocoa with a specified number of grains, and quills filled with gold-dust.* These commodities were used by measure and number, rather than by weight. (See Prescott's *Conquest of Mexico*, vol. i, p. 145, and vol. ii, p. 140.)

The Spaniards introduced gold and silver coins soon after their arrival in the country. A few of these old coins

* Gold-dust has been employed as currency on the Pacific coast of the United States for many years. This kind of money was evidently suggested to the Spaniards and Americans by the Aztecs.

may be found at the shops of the silversmiths, or *platerías,* at the present day.

The escutcheon of Mexico, *i. e.,* a royal eagle, with expanded wings, standing on a cactus, holding a serpent in its beak, is stamped on one side of all the silver coins, and a liberty-cap and rising sun are found on the reverse. During the French invasion the bust of Maximilian was substituted for the cap of liberty.

Mexico has followed the example of Spain in adopting the decimal system of coinage, of which the *peso* is the basis.

The current coins are as follows :

SILVER.

One *peso,** or dollar, containing 8 *reales,* or 100 cents.
Four *reales,* or one *toston,* 50 cents.
Two *reales,* or one *peseta,* 25 cents.
One *real,* 12½ cents.
One *medio,* 6¼ cents.

COPPER.

One *cuartilla,* 3 cents.
One *tlaco,* 1½ cent.

NICKEL.

Coins of five and two cents, and of one cent, have recently been issued for general circulation.

The standard gold coin is the *onza,* which equals $16 ; and there are $10 and $5 gold pieces. They do not circulate, however, so that the traveler will have nothing to do with them.

Paper currency has lately been issued by the Mexican

* One *peso* is worth from 85 to 87 cents in United States money, so that a cent is only equivalent to about 8½ mills.

National and the Mexican Mercantile Banks, and the London Bank of Mexico and South America.

The *Monte de Piedad,* a Governmental corporation, has bank-bills from one dollar upward in circulation, which are taken *at par* throughout the Republic. Outside of the City of Mexico the currency of the other banks is received *at a discount.* This fact should be remembered by tourists.

The London Bank of Mexico and South America will cash letters of credit on British and American bankers, and a few of the branches (*sucursales*) of the *Banco Nacional Mexicano* will do likewise.

Travelers may also provide themselves with drafts on the various diligence offices in the interior of the country, by depositing the amount in advance at one of the principal offices. In case of robbery by brigands, the diligence company will repay the value of the draft, if it be taken from the person of the tourist, upon furnishing satisfactory evidence to one of the agents.

Bankers will give a higher rate of premium on drafts on New York than can be had in exchanging money. In Vera Cruz, United States money may be exchanged for Mexican currency at 113 to 114 cents on the dollar ; and in Monterey and near the American frontier, the rate is as high as 115 cents.*

In the City of Mexico the banking hours are from 10 A. M. to 4 P. M., and in other cities from 9 to 12 A. M., and from 2 to 4 P. M.

Up to the year 1883 the Mexican Government has exacted an export duty of 5 per cent on coin. It is now remitted. For the fiscal year ending June 30, 1882, the coin and bullion exported amounted to $6,631,938.

* Mexican coin can be purchased on better terms the farther the seller is from the country.

XVI.

Mints.

THERE were formerly fourteen mints in the country, the oldest of which is that of the City of Mexico. Visitors are admitted to these institutions from 8 to 12 A. M., and from 1 to 4 P. M. It is better to go in the morning, as the workmen are more commonly employed during this time. English machinery is generally used at the mints.

The following table, taken from Señor Busto's great work, gives the coinage of the mints for the fiscal year of 1878 to 1879 :

MINTS.	Gold.	Silver.	Copper.	Total.
Mexico	$304,500 00	$5,116,000 00	$14,800 00	$5,435,300 00
Zacatecas	50,111 00	4,597,939 50		4,648,050 50
Guanajuato	212,158 00	3,740,403 75		3,952,561 75
San Luis Potosí		2,519,110 00		2,519,110 00
Guadalajara	3,830 00	1,413,161 00	1,500 00	1,418,491 00
Chihuahua		806,025 00		806,025 00
Culiacan	49,230 00	891,951 00		941,181 00
Durango	23,935 00	854,882 50		878,817 50
Alamos	13,700 00	756,598 15		770,298 15
Hermosillo	1,360 00	555,650 00		557,010 00
Oaxaca	3,700 00	153,610 00		157,310 00
	$662,524 00	$21,405,330 90	$16,300 00	$22,084,154 90

XVII.

Post-Office and Letters.

BEFORE the Conquest letters were carried throughout the realm by swift-footed couriers. The distance from Vera Cruz to the City of Mexico, about 200 miles, was traversed in twenty-four hours.

Reports and messages were generally transmitted in picture-writing. It was in this manner that Montezuma learned of the arrival of Cortes and his warriors.

The various lines of steamers now carry the mail along the coast, and the railways, diligences, and special couriers, transport it into the interior.

In 1881 the number of post-offices in the Republic was 873, and the proceeds from the sale of stamps amounted to $500,000 annually.

In addressing letters, *Sr.*, *Don*, stand for "Mr.," and *Señora* is used as the title for "Mrs." Strangers should omit such affixes as "esquire," in directing letters, on account of the difficulty the Mexican clerks have in deciphering foreign names.

On the arrival of the mail at the post-office, the names on the letters are written on lists, and placed on bulletin-boards near the door. There are separate lists for letters coming from foreign countries, from the interior, and from the city or county in which the post-office is situated. Sometimes a local letter is put on the foreign list by mistake. It will be advisable, therefore, for the stranger to look at all the bulletins. If the traveler sees his name on the list, he should write it down just as it appears on the board, and hand it to the clerk at the window.

Post-offices are generally open from 8 to 12 A. M., and from 3 to 9 P. M., throughout the country. In the City of Mexico the office hours are from 9 A. M. to 1 P. M., and from 3 to 5 P. M.

Tourists are recommended to go to the post-office in person, in depositing or receiving their letters, in order to guard against mistakes.

Public letter-writers do a considerable business on the *plazas* of all the principal cities. Many of the natives can not write. In times of revolutions the post-office is of

little use, as the insurgents examine, and often confiscate, the correspondence.

At present, the rates for postage in the interior of Mexico are so high that letter-writing is rather expensive. The foreign are much lower than the domestic rates.

Stamp-tariff.—For single letters to points in the interior of the country, *not exceeding* 16 leagues, the rate is 10 cents for each quarter of an ounce; 25 cents for half an ounce; 35 cents for three-quarters of an ounce; 50 cents for each ounce.

Single letters to points *exceeding* 16 leagues, 25 cents* for each quarter of an ounce; 35 cents for half an ounce; 50 cents for three quarters of an ounce; and 60 cents for each ounce.

Printed matter in unsealed wrappers, 5 cents a pound, or $1.25 for a package weighing one *arroba* (25 pounds).

Unsealed business circulars, 5 cents each, or $4 a hundred. Printed or engraved cards on pasteboard or vellum, 75 cents a pound.

For Foreign Letters.—Each half ounce (15 grammes), 6 cents; postal-cards, 2 cents each.

Printed matter of all kinds:

1 cent for 50 grammes or less.
2 cents for 100 grammes.
3 cents for 150 grammes.
4 cents for 200 grammes and up to 2 kilogrammes.

Each State in the Republic has its own stamps, with particular numbers marked on them. No stamps are allowed to be taken outside of the post-office, except in the city of Vera Cruz. The rules of the department require that letters must be delivered at the stamp-window,† where

* After January 1, 1884, inland postage will be 10 cents for each quarter of an ounce.

† This regulation is of great annoyance to the tourist.

the amount of postage should be paid. The Government officials attach the stamps to the envelopes. In the national capital there are various shops, in the business part of the city, at which letters will be received and forwarded.

XVIII.

Telegraphs.

THERE are several lines of telegraph in operation throughout the Republic. The Federal Government has its wires all over the country, and the States of Zacatecas, Hidalgo, Morelos, and Michoacan, also own telegraph-lines. The Mexican Railway Company, the Mexican National Railway Company, the Mexican Central Railroad Company, and the Morelos Railway Company, have erected lines of telegraph.

It may be remarked that, in the case of the Mexican National Railway Company, the General Government reserves the right to put up two wires on its poles.

There are private lines in the States of Jalisco and Vera Cruz. That of the latter State extends from the capital to the city of Vera Cruz, and is called the Commercial Telegraph Line. A New York corporation, entitled the Mexican Telegraph Company, has established itself in the country; and there are submarine cables running from Mexico to the United States, Central America, and South America.

All the railway stations contain telegraph offices, and the hours of business are in general from 8 A. M. to 8 P. M. The principal offices of the lines belonging to the National and State Governments are in the business part of the larger cities. English is rarely spoken by the operators;

and the rates for messages are much higher than in the United States.

On the 1st of June, 1883, the total number of telegraph lines in operation amounted to 10,200 miles. The Mexican Central and Mexican National Railroad Companies are erecting telegraph-poles as fast as each mile of track is completed. In some cases the wires are extended beyond the temporary terminus.

XIX.

Census.

No *complete* census has ever been taken of the Mexican Republic. The figures given in the public documents are generally estimates rather than correct enumerations of the inhabitants.

At the time of Humboldt's visit (in 1803), the total population was 5,840,000.

In 1838, it was 7,044,140; in 1856, 7,859,564; in 1872, 9,097,056; in 1874, 9,343,470; in 1878, 9,384,193; in 1879, 9,577,279; in 1882, 10,000,000.*

In 1803, the number of inhabitants in the three principal cities was in Mexico (city), 135,000; Puebla, 67,800; Guadalajara, 19,500.

In 1879, Mexico had a population of 241,110; Guadalajara, 78,600; Puebla, 64,588.

The following table, copied from Señor Busto's great work, gives the population of the several States, their area and the number of inhabitants to the square kilometre; also the population of the capitals of the States, in 1879:

* This list is taken from Busto's *Estadística de la República Mexicana.*

STATES.	Area in square kilometres.	Total population.	Average number of inhabitants to square kilometre.	Capitals of the States.	Number of inhabitants.
1. Aguascalientes	5,776	140,430	24·30	Aguascalientes	31,872
2. Lower California(Ter.)	152,847	23,195	0·15	La Paz	2,396
3. Campeche	67,589	86,299	1·28	Campeche	15,190
4. Coahuila de Zaragoza	152,517	104,131	0·68	Saltillo	11,340
5. Colima	7,136	65,827	9·22	Colima	23,572
6. Chiapas	42,930	219,735	5·00	San Cristóbal las Casas	8,500
7. Chihuahua	272,716	180,758	0·66	Chihuahua	12,116
8. Federal District	231	354,340	1,533·94	Mexico, cap. of the Rep.	241,110
9. Durango	110,463	190,846	1·73	Durango	27,119
10. Guanajuato	20,276	788,202	38·87	Guanajuato	56,112
11. Guerrero	68,568	308,716	4·50	Chilpancingo de los Bravos.	3,800
12. Hidalgo	21,693	434,096	20·01	Pachuca de Guerrero	12,500
13. Jalisco	114,896	994,900	8·66	Guadalajara	78,600
14. Mexico	25,245	696,038	27·57	Toluca	12,300
15. Michoacan de Ocampo	55,693	648,857	11·65	Morelia	20,400
16. Morelos	4,536	154,946	34·16	Cuernavaca	16,320
17. Nuevo-Leon	33,156	194,861	5·11	Monterey	15,300
18. Oaxaca	70,838	718,194	10·14	Oaxaca de Juarez	26,228
19. Puebla	31,120	704,372	22·63	Puebla de Zaragoza	64,588
20. Querétaro de Arteaga	8,300	179,915	21·68	Querétaro	27,560
21. San Luis Potosi	71,210	506,799	7·12	San Luis Potosi	34,300
22. Sinaloa	69,211	167,093	2·41	Culiacan	7,878
23. Sonora	209,694	139,140	0·66	Ures	9,700
24. Tabasco	32,935	93,387	2·84	San Juan Bautista	6,800
25. Tamaulipas	75,191	144,747	1·92	Ciudad Victoria	7,800
26. Tlaxcala	3,898	133,498	34·25	Tlaxcala	4,800
27. Vera Cruz	71,116	504,970	7·10	Jalapa	12,400
28. Yucatan	84,585	285,384	3·37	Mérida	32,000
29. Zacatecas	68,596	413,603	6·03	Zacatecas	32,000
	1,958,912	9,577,279	4·89		854,101

XX.

Population.

THE population of Mexico is divided into four great castes, as follows:

Whites (individuals born in Europe, Spanish creoles born in America); Indians; negroes; a mixed race (mestizos from whites and Indians, mulattoes from whites and negroes, zambos from Indians and negroes).

The Indians outnumber the other inhabitants. They are variously estimated at from one half to three quarters of the entire population. They are a long-lived race, small

in stature, but possessing great endurance. Thus far the Indians have not been affected by foreign influence. It is very difficult to give a correct estimate of the number of foreigners in the country. We are disposed to believe that it does not exceed 100,000. The foreign population consists chiefly of French, Spaniards, Americans, Germans, Italians, and English. They live mostly in the cities of Mexico, Vera Cruz, Puebla, Chihuahua, Guanajuato, Monterey, and Guaymas. The Mexicans reside principally in cities and towns. In the rural districts the traveler will find some *haciendas*, or farm-houses, at a distance from any settlement, but isolated dwellings are rarely met with. Except along the trunk-lines of railroad, one can ride fifteen or twenty miles in many parts of the Republic without seeing a house.

XXI.

Architecture.

THE architecture of the ruined palaces and temples of Mexico is described in the chapter on ruins. It may be said, however, that the former resemble the buildings of the ancient Greeks and Romans in ornamentation, and the latter are not unlike the pyramids of Egypt in external appearance.

The prevailing style of modern architecture throughout the Republic is the Spanish *renaissance*. Almost every cathedral and church in the country are built in this fashion. The façades of the churches often contain beautiful stone carvings of figures of the saints, and also arabesque work. Mexico, Puebla, Morelia, and Guadalajara, contain cathedrals that compare favorably with those of any other cities in the world. The plans of most of the Mexican churches were drawn in Spain. The buildings used for secular purposes, especially those belonging



The Cathedral, Mexico.

to the Government, are imposing and commodious. The largest edifice in Mexico is the national palace at the capital. It has two high stories and a frontage of 675 feet.

Most of the houses have one story, and are provided with a *patio*, or courtyard, in which flowers and fruit-trees are planted. The roofs are generally covered with tiles, of which red is the prevailing color. In the principal cities a second story is added ; but in the capital, and in the mining towns of Guanajuato and Zacatecas, where land is quite valuable, the buildings contain three, and often four (including the *entresol*), floors. While the larger edifices are constructed of igneous rocks, such as porous amygdaloid, trachyte, and porphyry, the dwelling-houses are usually made of brick and stuccoed. The roofs of the former are flat, and commonly furnished with a low wall, whereas those of the latter slant from the ridge-piece and are provided with eaves. In some cities the eaves are of sufficient size to afford protection to the pedestrian from the sun and rain.

As a rule, all buildings in Mexico are erected in the most substantial manner. The walls are of great thickness, and cellars are rarely seen. The windows are generally covered with railings of Biscay iron, reminding the traveler of Spain. Balconies are added to those above the ground-floor. Many private residences of the better class have *porte-cochères*, and a fountain in the paved courtyards. The dry climate is favorable to the endurance of the edifices, and many houses built soon after the Conquest are still in a fair state of preservation.

In the villages on the table-land, the most common building material is *adobe*, or sun-dried brick. The peasants living in the *tierra caliente* and *tierra templada*, commonly use sugar-cane stalks and palm-leaves in making their huts.

Tourists are advised to spend much of their time in

visiting the churches. The cathedrals are generally provided with two towers, from which a fine view of the city may be obtained. These religious edifices are usually built in the form of a Latin cross, and the interior is seldom frescoed. The traveler soon grows weary of the white plastered walls, on which indifferent paintings are frequently hung.

The cathedral of Puebla has a stone floor, while that of Mexico is of wood, which seems out of place in comparison with the solid magnificence of the building. The objects of interest in a Spanish church are: the high altar, the stalls in the choir, the lateral chapels, and the relics and vestments in the sacristy.

The following terms applied to different portions of churches will be found useful:

Fachadas, façades; *lonja*, a long platform, which often surrounds the churches exteriorly, and which is ascended by steps or grees, *escalinata* or *gradas*.

The font is *pila bautismal*.

Pila de agua bendita is the stoup, or font, containing holy water; *coro*, is the choir; *trascoro*, the back to it, often profusely decorated; the *respaldos del coro* are the lateral sides of it.

The stalls are *sillas*, forming *sillería alta*, or *baja*, as the case may be.

The choristers' desks are called *atriles;* the lectern, *facistol*, and the transept, *crucero*. Over it often rises a dome or lantern, which is called *cimborio*, and, from its shape, *media naranja*.

The purclose, or railings, *rejas*, are often beautifully executed, and made of silver.

The *abside* contains a *capilla mayor*, with the high altar, *altar mayor;* the *reredos*, or screen rising from it, is named the *retablo*. The latter are commonly exquisitely gilded. The right side of the altar—*i. e.*, the right of the

celebrant, looking *from* the altar—is called *lado del evangelio;* the left is *lado de la epístola.*

The chapter is *el cabildo.*

The *sagrario* is a special chapel, where the Holy of Holies is often placed, *de manifiesto,* or displayed.

The vestry is *la sacristía;* the sexton, *sacristan.*

The relics, vestments, plate, etc., are kept in what is called *el relicario.*

Monaguillos are the vestry boys.

Misa mayor is high mass.

The belfry is *la torre* or *el campanario.*

XXII.

Painting.

THE art of painting was rudely known among the Aztecs, whose means of conveying information was called *picture-writing.* Unfortunately for learning as well as for art, Zumarraga, the first bishop of Mexico, ordered all Aztec paintings and manuscripts to be committed to the flames. There are, however, a few specimens of these antique pictures in the museum at the national capital. There are but two academies of fine arts in the Republic, one at the City of Mexico, and one at Guadalajara. Art schools are connected with each, and another has been established at Puebla.

The academy of San Carlos, at the capital, contains paintings of considerable merit. Among the best Mexican artists are José and Luis Juarez, Baltazar de Chave, Obregon, Parra, Arteaga, Rodriguez, Ibarra, and Cabrera, the latter being an Indian. There are several excellent portraits of illustrious Mexicans in the *Sala de Embajadores* at the National Palace, most of them having been painted by Segredo and Obregon.

The churches throughout the country are full of pictures, most of which are the work of Spanish artists, such as Murillo, Velasquez, Zurbaran, and Ribera. There are paintings by the former in the cathedrals of Mexico and Puebla, and in the church of La Compañía at the latter city.

The picturesque landscapes and street scenes of Mexico afford good material for artists, and we would recommend the country to them as a new field of labor.

XXIII.

Immigration.

THE Mexican Government has recently adopted a comprehensive plan for the encouragement of immigration. Agents are employed to bring settlers into the country. There is a bonus of from forty to fifty dollars a head for each immigrant, and the Government gives each helpless one an allowance of twenty-five cents a day till he can support himself. Many Italians have come into Mexico. Some have been brought from New York, and others directly from the ports of Northern Italy. This scheme, however, is not productive of beneficial results. Each immigrant is maintained at the public expense for an indefinite period, and there is little incentive to work. Furthermore, a number of these Italian settlers belong to the criminal classes. A Mexican official of high rank has lately informed the author that this plan is about to be discontinued.

The Mexican Transatlantic Steamship Company * will receive thirty dollars a head for each immigrant.

As the Federal Government owns but little land, of which sections may be given to settlers, arrangements have been made with the railroads to carry immigrants to the

* The company's steamers are now in progress on the Clyde.

interior at reduced rates. The Government will pay for their passage; but, as the metes and bounds of the public lands are not accurately defined, it would seem as if no lands could be given away at present.

Señor M. Romero states, in *The International Review* for November, 1882, that land in the State of Chiapas is valued at twenty cents an acre, while that in Sonora is worth only five cents.

Land is not for sale, however, in large quantities, excepting a few stock-ranches in Northern Mexico. The proprietors are still sufficiently imbued with feudal notions to prompt them to hold on to their real estate. A few families still retain immense tracts. One *hacendado* is said to own an area of 10,000 square miles on the northern part of the Great Plateau.

The railroad companies have occasionally been obliged to pay very high for a site on which to build a station and freight-house in the farming districts.

We venture to predict that settlers will pour into Mexico rapidly after the American trunk-lines are completed.

It is obvious, however, that the introduction of intelligent Americans, with capital, will be a very different thing from the influx of poverty-stricken peasants or miners from Europe.

American immigration means permanent colonization, whereas that from other countries will hardly attain that distinction.

It is possible, however, that colonies of German or British miners may be established in Mexico. High wages and the salubrious climate will tend to attract them. During the year 1882 settlements of Europeans were founded in the States of Vera Cruz, Puebla, Morelos, and San Luis Potosi. The majority will certainly enter the Republic with the intention of engaging in either mining or manufacturing enterprises.

XXIV.

Mines.

AN elaborate description of the mineral wealth of Mexico would require a large volume. We have only space for a brief account of the mines, together with some statistics of the production of the precious metals.

The Cordillera, from Chihuahua on the north to Oaxaca on the south, contains almost inexhaustible deposits of gold, silver, iron, copper, and lead; while zinc, mercury, tin, platinum, and coal occur in a few localities. The greatest variety of ores is found in the States of Sonora, Chihuahua, Michoacan, Guerrero, and Oaxaca. The first and last named States of the Republic possess auriferous gravel or placer deposits.

Before the Conquest the mines of gold, silver, copper, and tin were worked by the Aztecs; but the accounts usually given of the fabulous amount of gold used by this race of people, either for ornament or as money, have been greatly exaggerated. Cortes seized a large sum of gold at the ancient capital of Mexico, the amount of which is variously estimated by different authors. The most accurate writers place the figures at $300,000. As soon as the Spaniards had conquered Mexico, they turned their attention to the development of the mineral wealth of the country. The mines of Tasco, Zultepec, Pachuca, San Pedro de Jorullo, and Tlalpujahua were almost the only ones that were worked directly after the destruction of the city of Tenochtitlan in 1521, and from that time to 1548, when the silver deposits of Zacatecas were discovered.

Argentiferous veins constitute the principal part of the mineral wealth of Mexico, the silver generally occurring in the form of sulphides. The gangue is chiefly quartz. Most of these mines are situated between north latitude 19° and 24½°.

Humboldt, in his *Political Essay on New Spain*, vol. iii, page 138, states the order of the districts containing the richest deposits of silver as follows: 1. Guanajuato. 2. Catorce. 3. Zacatecas. 4. Real del Monte. 5. Bolaños. 6. Guarisamey. 7. Sombrerete. 8. Tasco. 9. Batopilas. 10. Zimapan. 11. Fresnillo. 12. Ramos. 13. Parral.

In 1803,* the mean annual yield of the precious metals amounted to 2,500,000 marcs of silver, and 700 marcs of gold. It is said that the total product of the Mexican mines up to the year 1883 is equal to $3,700,000,000 of silver. We should remember, however, that some of these mines are now on American soil, *e. g.*, those of California, New Mexico, and Arizona. The yield of silver for 1882 can be roughly estimated at $28,000,000, while that of gold amounts to about $1,000,000.† Millions of dollars' worth of silver have long been and are now being exported to Europe. Humboldt states, in his work on *New Spain*, that two thirds of the silver supply of the whole world was annually shipped from the port of Vera Cruz, between the years 1800 and 1812, and some silver was also sent abroad from Acapulco. At present about fourteen millions' worth of this metal are annually exported to Europe. (Compare with chapter on commerce.)

The supply of silver in Mexico is now derived chiefly from the mines of Guanajuato, Zacatecas, Sombrerete, Catorce, and Pachuca. Gold generally occurs in small quantities with the silver-ores. But most of it is lost in the process of reduction.

According to Humboldt, the joint yield of the Zacatecas and Guanajuato mines from 1548 to 1600 was $2,000,000, and from 1600 to 1690 it was $3,000,000. The ores at the

* At the time of Humboldt's visit.

† The production of the mines of the United States for the fiscal year of 1882–'83 was $47,000,000 of silver and $32,000,000 of gold, given in round numbers.

former locality, as well as at Tasco and Catorce, are poor in gold; while those of the latter town, and also at Guadalupe y Calvo, are rich in their percentage of the same metal.

Perhaps the two most remarkable mineral veins of North America, excepting the famous Comstock lode of Nevada, are the *veta madre* of Guanajuato and the *veta grande* of Zacatecas. These veins have been worked for about three hundred years. (*Vide* section on the Mexican Central Railroad, for description.) The region adjoining these mining towns is an elevated desert, similar to the environs of Virginia City in Nevada.

Next to argentiferous deposits in importance are the immense beds of iron, which consist principally of the oxides called magnetite and hematite. The well-known *Cerro del Mercado*, in the State of Durango, has been calculated to contain sixty million cubic yards of iron-ore, having a specific weight of five billion quintals. An analysis of this ore by Mr. M. H. Borje, of Philadelphia, Pennsylvania, gave 66 per cent of pure metal. There are other vast hills of iron in Sonora, near Coalcoman, in Michoacan, and in the central part of the State of Oaxaca.

Lead-ores, usually in the form of galena and oftentimes argentiferous, are abundant throughout the country.

Copper, either native or as oxide, carbonate, or sulphide, is mined at various localities in Chihuahua and Oaxaca, at the towns of Mazapil and Jalapa, and near the volcano of *Jorullo*, and also in Lower California.

The oxide of tin is found in veins and alluvial beds at Durango.

Mercury occurs combined with sulphur, *i. e.*, *cinnabar*, in the States of Guerrero, San Luis Potosí, Michoacan, Oaxaca, Chihuahua, and Guanajuato. Zinc-ores are met with in Chihuahua; and platinum, antimony, cobalt, and nickel come from the same State. These last-named metals, however, are not found in large quantities.

There are beds of coal in various parts of Mexico, but principally in the States of Oaxaca, Vera Cruz, Mexico, Puebla, Nuevo Leon, Tamaulipas, and Sonora. Anthracite of good quality is mined in the latter State,* and a fair quality of it is worked in the northern parts of Tamaulipas and Nuevo Leon. Some of this coal is burned in the engines of the Mexican National Railway. Lignite or brown coal occurs in many localities, but it is not used to any extent. We have stated elsewhere,† that coal is imported in large quantities, owing to the scarcity of fuel near the lines of the railroads. It may be added that an extensive mine of coal would be of more value to Mexico at present than one of gold.

As regards the cost and methods of mining in Mexico, it may be remarked, that the art has not yet attained the high degree of perfection known in Europe and the United States. Humboldt stated in 1803, that subterranean geometry was mostly unknown, and that, as a rule, the means of communication between contiguous mines were badly arranged. Millions have been expended in developing the mineral wealth of Guanajuato and Zacatecas. It is said that the Count de Valenciana dug three pits in a single mine near the former city, at the cost of $1,700,000 (*vide* p. 266).

Owing to the low price of labor and the very economical methods of the natives, more can be accomplished for a given amount of money at present, by working the metallic mines on the old Mexican plan, than by the modern and improved system. (*Vide* chapter on labor and wages.)

Thus far, few shafts have been sunk to a greater depth than one thousand feet. Steam-hoisting works, pumps, and tramways in the various levels of the mines are rarely

* See Section X in Part Second.

† In Section II of Part Second.

used. *Malacates*, or large horse-whims, are substituted for the former; and water is raised in large skins attached to ropes. The *peons* carry pieces of ore weighing from one hundred to two hundred pounds on their backs from the "headings" of the levels to the main shaft, where the mineral is hoisted in huge baskets.



Longitudinal View of Timbered Level.

Iron drills of domestic manufacture and tipped with steel are still used by the *peons*. A few foreigners are employed at high wages in the mines of Chihuahua and the neighboring States, and also at the town of Pachuca, but they generally occupy positions like that of superintendent or engineer. American mine-owners in Mexico admit that the "jackass" mode of mining of the natives is cheaper than the European methods.

The Mexican miners are not much annoyed by heat nor by water. Humboldt found the temperature at the bottom of the Valenciana mine, then 1,681 feet deep, to be 93° Fahr. The miners descend in the shafts, either by means

of massive stone steps that have been used for ages, as in Guanajuato, or on a series of ladders, as at Zacatecas.

Peons pick the ore over by hand at the surface and separate the gangue with small hammers. The ore is then carried to the reducing-mills on mule-back.

Most of the mines and mills are inclosed by high walls, and the *peons* are searched before being allowed to leave. It is very common to conceal valuable fragments of gold or silver-bearing rock in the clothing, or in the hair, or under the arms, of the miners. (See chapter on Guanajuato in Section V.) The argentiferous ores of Mexico have been worked by the *patio,* or cold amalgamation process, for about three centuries. Mule-power is used almost entirely in the *haciendas de beneficios* or reducing-mills.* (*Vide* chapter on Guanajuato, in Section V, Part Second, for a description of the *patio* process.)

Mines in Mexico belong to individuals and not to the Government. If abandoned, however, they revert to the State. In order to hold a mine, the owner is required to work it during four months of the year. Should the proprietor neglect to observe this law, the property is "denounced," *i. e.*, escheats to the State, and it is soon advertised for sale. Sometimes valuable mines can be purchased for a mere song at a Government sale.

Foreigners intending to invest in Mexican mines should employ a competent mining engineer to examine them, and should also exercise extreme caution in dealing with the owners, as Mexicans will not dispose of mining property unless they can make a *very* good bargain. At present very few mines in Mexico are paying dividends.

In closing this chapter, it may be said that, if the tourist desires to visit the mines of the Republic, he will be treated with great courtesy by the superintendents and

* One steam-mill with improved machinery has been erected at Guanajuato.

miners generally. The morning is the best time to go underground.

For the convenience of travelers, we give a brief list of mining terms:

Socabon, gallery or main adit; *tiro*, shaft; *malacate*, horse-whim; *escalas*, ladders; *peña* or *piedra*, rock; *guija*, quartz; *veta*, vein; *mineral*, ore; *ancho*, wide; *angosta*, narrow; *oro*, gold; *plata*, silver; *cobre*, copper; *hierro*, iron; *azogue*, quicksilver; *plomo*, lead; *estaño*, tin; *azulfre*, sulphur; *caliza*, limestone; *bronce*, pyrites.

What kind of rock is it? *Como se llama esa piedra?* How wide is the vein? *Que anchura tiene la veta?* Ten inches wide. *Diez pulgadas de ancho.* How deep is the shaft? *Que profundidad tiene el tiro?* I wish to see this mine. *Quiero ver el interior de esta mina.* Can I enter? *Puedo yo entrar?*

Thanks, *gracias.*

For further information on the metallic resources of Mexico, consult Humboldt's work on *New Spain*, vol. iii especially; Ward's *Mexico;* Whitney's *Metallic Wealth of the United States;* and Busto's *Estadística de la República Mexicana.*

XXV.

Mineral Springs.

MINERAL springs abound on the table-land of Mexico. Perhaps the best-known springs are at the city of Aguascalientes, where a large bathing establishment has been erected. *Ojos calientes*, or hot springs, are found in many places, not only in the vicinity of the volcanoes, but at great distances from them. These places are not as yet used extensively as resorts for invalids, but it is believed that they will be visited for this purpose when rendered accessible by railroads.

XXVI.

Geology.

THIS chapter may be read in connection with that on mines. Much has been written by Europeans and Americans on the geology of Mexico. But, interesting as the subject is, we have only space for an outline of the formation and physical structure of the country. A large part of Mexico is overlaid by igneous rocks, which consist chiefly of trachyte, feldspar-porphyry, and amygdaloidal basalt.

In the Sierra Madre, the metamorphic rocks, such as granite, gneiss, and clay-slate, are common. The great argentiferous veins frequently occur in the latter rock, although sometimes in porphyry, *e. g.*, at Real del Monte, or in talcose slate, *e. g.*, some mines at Guanajuato.

Limestone is found at Tasco and Orizaba. It is extensively quarried at the latter town. The same rock constitutes the greater part of the eastern branch of the Cordillera between San Luis Potosí and Monterey. According to Dr. Wislizenus, the limestone at Saltillo belongs to the Silurian age. The lower part of the *tierra caliente* consists mostly of alluvial soil, although in a few places rocky ridges extend to the coast, *e. g.*, at Acapulco.

We have referred to the localities of the ores of the principal metals and of coal in the chapter on mines. Deposits of nitre, kaolin, common salt, and Glauber's salt, or sulphate of soda, are abundant on the table-land. Petroleum occurs plenteously in the States of Vera Cruz, Puebla, Tabasco, and Oaxaca. Sulphur is found at the volcanoes, especially those of Popocatepetl and Orizaba. A large supply is now obtained from the former.

It is said that Cortes's warriors descended into the crater

of Popocatepetl to procure sulphur for the manufacture of gunpowder. The abundance of hot springs on the Mexican plateau has already been mentioned (see p. 82).

The volcanoes are perhaps the most interesting features in the geology of Mexico to travelers. There are four active* volcanoes in the Republic; but no eruption has occurred in any of them during the present century. Earth-



The Peak of Orizaba

quakes are common in the vicinity, however, and *solfataras*, *fumaroles* emitting hot aqueous vapor, and adjoining warm springs, indicate that these volcanoes are still in a semi-active state.

Beginning on the western coast, the Mexican volcanoes are: Colima, Jorullo, Popocatepetl, Iztaccihuatl, Orizaba, and Tuxtla. The heights of these mountains are given in Part Second.

Humboldt, who was the first scientific observer to make an extensive geological reconnaissance of Mexico, has re-

* By the term "active" we mean those volcanoes in which an eruption has taken place within the memory of man.

marked that the volcanoes just named lie on the same great vent of the earth's crust, and approximately on the nineteenth parallel of north latitude (*vide Cosmos*, vol. v, p. 377, *et seq.*).

The most important geological event in Mexico since the Spanish Conquest is the elevation of the volcano of Jorullo, which took place in the year 1759 (see Section IV, in Part Second, for a long account of it). The description of Jorullo explains, in a general way, the manner in which volcanic mountains are formed.

There are still many parts of the Mexican Republic where the hammer of the geologist has not yet sounded, because scientists have thus far confined their observations chiefly to the vicinity of the metallic deposits and the volcanoes. A great variety of minerals and precious stones is found in Mexico. Señor Busto states that the number of mineral species is three hundred and sixty-five, the majority of which occur as ores.

We have not sufficient space in this volume to give the complete list, but among the gems of the country we may mention the ruby, diamond, opal, topaz, emerald, garnet, agate, carnelian, and *tecali*, or so-called Mexican onyx, which is a variegated calcite.

For further information on the geology of Mexico, the reader is referred to Humboldt's *Cosmos* and *New Spain;* Busto's *Estadística de la República Mexicana;* Burkart's *Aufenthalt und Reisen in Mexico in den Jahren* 1825–1834; Wislizenus, *Memoir of a Tour to Northern Mexico;* and various articles in the *American Journal of Science and Arts*, in the *Annales des Mines*, in *Poggendorff's Annalen*, and several other French and German scientific periodicals.

XXVII.

Zoölogy.

OWING to the variety of climate of the three zones of Mexico, the *fauna* of each one differs greatly.

Among the animals indigenous to the country, large mammals are very rare. The most common species are the black bear, or *oso;* the deer, or *venado;* the Mexican wolf, or *coyote;* the marten, or *camomiotte;* the otter, or *nutria;* the squirrel, or *urion;* the porcupine, or *hoitzlacuatzin;* the skunk, or *gatomontes* (of which there are four varieties); and two kinds of the hare, or *liebres.* One of these was called the *jackass-rabbit* by the United States troops during the Mexican War.

Several other rodents, the *armadillo,* the shrew-mole, or *topo,* and the opossum, or *zorra mochilera,* also abound.

Besides the domestic fowls, two hundred kinds of birds, including eagles, hawks, ravens, wild turkeys, and buzzards, are found in the Republic.

Reptiles are comparatively scarce on the table-land, but are abundant in the *tierra templada* and *tierra caliente.* Turtles (*tortugas de mar*) are common in the Gulf of Mexico, the *chelonia imbricata,* which furnishes the well-known tortoise-shell of commerce, occurring near the eastern coast.

Alligators (*lagartos*) live in the swamps of the southern States.

Lizards (*lagartijas*) are plentiful in the hot zone. The iguana (*Lacerta iguana,* Linnæus) sometimes grows to a length of three feet. Another species of lizard, known as the *alcatelepon,* being about fifteen inches long, and having a rough gray skin, is found in the country. Its bite is painful, though not dangerous.

Snakes (*serpientes*) occur in the various zones, but prin-

cipally in the *tierra caliente*. Poisonous serpents are unknown at an elevation above seven thousand feet. Both land and fresh-water snakes exist in Mexico. The most common species are the rattlesnake, or *cascabel;* the darting-snake, or *saltillo;* the black-snake, or *culebra;* and the *centoatl*, whose skin shines in the dark.



The Axolotl (Siredon pisciforme).

Among the sirens, the siredon, or *axolotl*, having a length of ten to fifteen inches, is found in the Lake of Texcoco, and in lagoons of the adjoining mountains. During the war of the Conquest, the *axolotl* was so plentiful that Cortes is said to have fed his army upon it.

The many fresh-water lakes of Mexico are well stocked with fish (*pescado*), the principal kinds being the bass, eel, trout, white-fish, and *bagre*. The flesh of the latter is delicious and is extensively used for food. The waters along the coast of the Republic likewise afford a great variety.

The red mullet, or *mujol*, is a favorite article of food among the Mexicans. It was this kind of fish that was carried by swift-footed couriers from Vera Cruz to the ancient capital, a distance of two hundred miles, for Montezuma's table.

There are infinite numbers of species of insects in the country. Many are poisonous, and the bites of others are very painful.

Butterflies (*mariposas*) and ants (*hormigas*) exist in great variety.

The *arriera*, or carrying-ant, is very injurious to agriculture. The black and red ant are abundant, and their



1. *Cochineal Insects on branch of Cactus.* 2. *Female Insect.* 3. *Male Insect.*

sting produces much pain. There are six kinds of bees (*abejas*).

Among the worms may be mentioned the *teocuilin*, which possesses the properties of the *cantharides*, and the *temahuani*, whose bite is venomous.

Ticks (*reznos*), mosquitoes (*mosquitos*), jiggers (*neguas*), and *moniquiles*, are common in the *tierra caliente*. The latter burrow under the skin, causing great suffering (see p. 156).

The cochineal, or *cochinilla*, is found extensively in Oaxaca. Fleas (*pulgas*) are plentiful throughout the country.

The silk-worm (*gusano de seda*) is raised in the southern States.

Among the *arachnida* of Mexico are the scorpion (*escorpion* or *alacran*) and tarantula, which are found in all the zones.

The centipede (*escolopendra* or *cientopiés*) occasionally grows to a length of eighteen inches, and is abundant in the *tierra templada* and *tierra caliente.*

In the sub-kingdom of *mollusca,* we will mention only the pearl-oyster, which occurs on the Pacific coast. The pearl (*perla*) fishery at La Paz, in Lower California, is of some importance. The *fauna* of Mexico has not thus far been fully described.

XXVIII.

Botany.

THE *flora* of Mexico consists of an infinite variety of species, on account of the configuration of the country. There is, perhaps, not a single plant known to science that can not be grown in the Republic.

The three zones have each a different *flora,* which may be described as follows:

In the *tierra caliente,* the plants consist mostly of tropical fruits, cocoa-palms, dye-woods, sugar-cane, indigo, and cotton.

In the *tierra templada,* there are bamboo and camphor-trees, oaks, cypresses, coffee, tobacco, and the cereals.

In the *tierra fria,* are found deciduous trees, and *conifera* like the pine, spruce, cedar, and fir, and the various species of *cactus.*

Wheat and a few vegetables also grow in the latter region.

Much logwood and Brazil-wood are found in the States

of Tabasco,* Chiapas, and Campeche; and in Sinaloa, mahogany, rose-wood, and ebony are abundant.

There are extensive forests in the States of Sonora, Chihuahua, Durango, Sinaloa, Jalisco, Michoacan, and Chiapas, and in the neighborhood of the volcanoes of Popocatepetl and Orizaba. We have referred elsewhere to the forests that once existed in the valley of Mexico (*vide* Section III of Part Second).

During the winter season the deciduous trees on the



Indigo Plant (*Añil*).

table-land shed their leaves, which are replaced by a new growth within a few weeks.

There is a great variety of fruits in the *tierra caliente*, among which are many species which are rarely seen in temperate climates, such as the *granadita*, *maney*, and *chirimoya*.

* The *ek*, *caoba*, *acum*, *cvcno*, *chimay*, *chulul*, *copal*, and other woods grow in the States of Tabasco and Chiapas.

The most abundant fruits are oranges, limes, bananas, and pineapples.

Flowers are cheap and plentiful at all seasons. Some species bloom on the great plateau. Dahlias and roses are most common in the parks and gardens of the cities.

The country possesses many other beautiful flowering plants that are known only to Europeans in the botanic gardens, such as the *clavel, floripondio,* and *azucena.*



Brazil-Wood—Leaves, Flower, and Fruit.

We may sum up the *flora* of Mexico as follows: There are fifty-six kinds of building-woods and twenty-one kinds of "cabinet"-wood; four varieties of gum and three of resin; twelve kinds of forage; one hundred species of odoriferous flowers, and fifty-two of cereals and vegetables; eighty-seven kinds of fruit, and one hundred and thirteen species of medicinal plants.

There are in all ten thousand known families of plants, many of which are of no economical importance. The principal trees and shrubs of the country are referred to in the itineraries of Part Second.

XXIX.

Agriculture.

ACCORDING to Prescott,* agriculture in the Aztec Empire was in the same state of advancement as the other arts

* *Conquest of Mexico*, vol. i, p. 134.

of social life. In the natural openings of the primeval forest, or in a fertile strip of interval, the Aztecs planted beans and Indian corn.

All, except the nobles and soldiery, cultivated the soil, the work being done chiefly by the men.

The more important branches of husbandry were the culture of the banana, which was easily grown and gave exuberant returns; the production of *chocolatl* from the cocoa-palm; the cultivation of the vanilla, which was confined to a small strip of the sea-coast; and the planting of maize and the *maguey*. Prescott calls the latter "a miracle of nature," on account of the large number of articles that are made from it. The Aztecs pressed the stalks of Indian corn to obtain the sap for sugar. There is no evidence that the tillage of the country was materially improved by the Spanish Conquest.



The Vanilla Plant.

Nevertheless, it must be admitted that agriculture is still in its infancy in the various parts of Mexico. This is due to the persistency of the *peons* in making use of the rude implements of their forefathers. Fortunately, an easily worked and fertile soil generally exists in the Republic. Frost occurs only on the table-land, and is rare in many portions of it. All kinds of cereals, vegetables, and fruits are cultivated in the country, but the absence of facilities for cheap transportation in some of the States is a great drawback.

The products of the three geographical divisions of Mexico may be briefly stated as follows: In the hot region, cotton, vanilla, indigo, rice, hemp, sarsaparilla, peppers, bene-seed, anise-seed, caoutchouc, cocoa, cassia, oranges,



India-rubber Plant (*Hule*).

bananas, and other tropical fruits grow to perfection. Several of these plants thrive without tillage. In the temperate region, coffee, sugar, tobacco, cotton, brown beans,* peas, and a few other vegetables, and the fruits of northern latitudes are cultivated. In the cold region, the cereals, the *maguey*, or aloe, and the hardy vegetables, as potatoes, carrots, beans, etc., are found. (*Vide* chapter on botany.)

Wheat † grows at as high an elevation as 8,500 feet in the latitude of the capital; and maize and the *maguey* may be cultivated at nearly the same altitude.

The crops in Mexico are dependent partly upon rain-

* Brown beans, maize, and pepper grow in all the States.

† Wheat grows in all but five States.

fall and partly upon irrigation. North of the twentieth parallel, irrigation is necessary on the table-land. In the southern States the rains are generally limited to one continuous season, which varies from five to seven months in the year. As in other tropical latitudes, a deluging rain oftentimes does more harm than good to the growing crops.

Referring to this important subject, Humboldt has remarked in his work on *New Spain*, vol. ii, page 455: "Were the soil of Mexico watered by more frequent rains, it would be one of the most fertile countries cultivated by man in either hemisphere." The prosperity of New Spain depends upon the proportion of dry and wet season. The farmer, of course, takes advantage of the rainy season, and in the northern and central States he sows in May and reaps in October. Two crops of wheat and Indian corn are grown annually in various sections of the *tierra templada* and on the central table-land. The second crop is, however, sometimes destroyed by a premature frost. In the States of Vera Cruz, Oaxaca, Guerrero, Tabasco, Mexico, and Jalisco, *three* crops of maize are cultivated in a single year! They are called respectively the *riego*, *temporal*, and *tonalmile*.

As irrigation (*riego*) is necessary for *more* than one half of the surface of the country, let us now consider this subject. In the Aztec Empire *acequias*, or irrigating ditches, were used. The Spaniards were agreeably surprised to find a system equal to that which the Moors had established in the Iberian Peninsula. The plan of watering the soil by artificial channels, however, is at present limited to a comparatively small portion of the arable land in the country. In order to increase the annual yield of grain and vegetables, the Mexicans should adopt the system of tanks which has been in use so long in British India.

Water-companies should be organized for this purpose, and the huge ravines, or *barrancas*, of the *sierra* should be

dammed up for the storage of an abundant supply of water for seasons of drought.

The soil of Mexico might be caused to yield a hundred-fold more grain than is now produced, and the Republic eventually enabled to compete with the States of California and Oregon in exporting the cereals to Europe.* Grain has recently (1883) been sent from California to New Orleans, La., *via* the Southern Pacific Railroad. The cereals of Northern Mexico might be transported to the sea-board by the same route. This subject is worthy of the attention of foreign capitalists.

As regards the amount of cereals cultivated within a given area in Mexico, it may be remarked that the proportion of grain to seed varies from forty to one to three hundred to one. An average yield would be about one hundred and fifty to one. In very fertile land one *fanega* (about three bushels) of seed will produce four hundred *fanegas* of maize. Humboldt has remarked that the finest soil on the plateau is to be found in the rich plains lying between the cities of San Juan del Rio and Leon.

It is not usual in Mexico to estimate a crop of grain by the number of bushels to the *acre*. In response to inquiries made in various States, the author was told that the yield of maize varied from twenty to forty bushels to an acre. The highest production is seventy bushels. No figures as to the proportionate amount of wheat and barley yielded could be obtained. Next to the cereals, the great staple

* Notwithstanding her immense mineral resources, California has since 1876, with the aid of improved agricultural implements and *acequias*, yielded more in agricultural products than from her mines. This State resembles Mexico in soil and in outline. According to Señor M. Romero, more wheat can be cultivated in Sonora than in California. And it may be added that the same remark will apply to the Mexican States bordering on the Pacific Ocean, as well as to those of Guanajuato, Querétaro, Hidalgo, Mexico, Morelos, and Puebla. Indian corn, barley, and brown beans are also grown extensively in several of these States.

products of Mexico are coffee, sugar, tobacco, cocoa, and cotton. All except the last-named are exported.

Coffee (*café*) was introduced into the West Indies about the year 1714, and was thence advanced to New Spain at the beginning of the present century. It grows best in the temperate zone, and in the shade of the forest. It is now cultivated in eight States—viz., Vera Cruz, Oaxaca, Chiapas, Tabasco, Guerrero, Colima, Michoacan, and Morelos. The State of Vera Cruz yields the largest quantity. Colima ranks next, and produces the finest variety of the article. It rivals the choicest Mocha brand. There is a great demand in foreign countries for Mexican coffee; and doubtless the annual production will soon be doubled if not quadrupled.



The Coffee Plant.

Sugar-cane (*caña de azucar*) is grown extensively in all but seven States of the Republic. The greatest amount of sugar comes from Morelos, and the State of Vera Cruz ranks second. Irrigation is necessary for its successful cultivation in some States. Sugar-cane grows both in the

tierra caliente and *tierra templada* up to an elevation of 6,000 feet. In the latter, eighteen months are required for the crop to mature, while in the former the time varies from nine to twelve months. The sugar-cane of Mexico is of three kinds—viz., those of Castile, Havana, and Otaite.

At the time of Humboldt's visit,* about 14,000,000 pounds of sugar were exported annually. In 1881 the amount did not exceed 500,000 pounds.

Tobacco is indigenous to Mexico. Indeed, it derives its name from the town of Tobaco in Yucatan. The culture of it was formerly restricted by law to the vicinity of Orizaba.† At present it grows chiefly in the States of Vera Cruz, Tabasco, Campeche, Yucatan, Oaxaca, Sinaloa, and Jalisco. (*Vide* chapter on cigars and tobacco.)

Cocoa (*cacao*) is found in the States of Tabasco, Chiapas, Oaxaca, Guerrero, and Colima. The first-named State produces the largest amount, the culture of cocoa being the principal branch of its agricultural industry. Chiapas ranks second, and but little of this article grows in the remainder of the Republic.

Cotton (*algodon*) is cultivated in about half the States. Vera Cruz produces the largest quantities, and Durango ranks next. The finest cotton comes from the Pacific coast States and from Vera Cruz. It is also grown extensively in the vicinity of the lagoon of Tlahualila (which is familiarly called the "laguna country"), and in Southern Chihuahua. According to Señor Busto, an acre of land will yield about 2,000 pounds of cotton as an average.‡ It thrives up to an elevation of five thousand feet.

In 1803 the annual exportation of cotton amounted to

* 1803.

† In 1800 two million pounds of tobacco grew in the districts of Orizaba and Cordoba.

‡ In the southern part of the United States, 950 pounds of cotton to the acre is a fair average.

700,000 pounds. At present it is not exported, nor is it cultivated in quite sufficient quantities for home consumption.

In 1806 Mexican cotton-seeds were introduced into Mississippi by Walter Burling, Esq., and are supposed to have improved the character of the staple thus grown.



Cocoanut Palm.

Vanilla is produced in the States of Vera Cruz and Oaxaca. According to Humboldt, Europe received its entire supply of this commodity from Mexico previous to 1812.

Bananas grow luxuriantly in the *tierra caliente*, and the *maguey*, or aloe, is cultivated extensively on the table-land. It is said that a plantation of the latter pays better as an investment than any other kind of crop in Mexico. The *maguey* will grow in a soil that is almost barren. It matures in eight years in the States of Puebla and Mexico; and in San Luis Potosi it becomes ripe in five years. This plant will not blossom in northern climes.*

* There is a popular belief that the *maguey* in temperate latitudes will reach maturity once in a hundred years. Hence the name "century-plant."

With the improved processes of tillage, including the use of modern implements, extensive tanks and irrigating ditches, all of which are likely to be introduced at an early day, the staple products of Mexico will of course be increased many fold.

The culture of sugar and tobacco is, and will doubtless continue to be, more profitable than that of the cereals. The cultivation of the tropical and semi-tropical fruits will also be carried on far more extensively than at present throughout the *tierra caliente*, and in the lower parts of the *tierra templada*.

A recent correspondent of the *Chicago Tribune* describes the Mexican farmer as follows: "On the ranch or village home of the 'greaser' Mexican everything bears the stamp of negligence and shiftlessness. Their gaunt, sharp-nosed, long-legged, and tan-colored hogs share with their owners in the comforts of the family residence. No fences except brush surround their fields. Generally there are none. They raise just sufficient wheat, barley, beans, and *chili* (red peppers) to meet their absolute needs. They thrash their crops upon bare, smooth ground by driving flocks of goats over them and washing in the nearest stream. They often plow with a crooked stick, and the hoe is their scythe, sickle, and reaper. Even their hay is cut with a hoe. They as a rule live in villages and cultivate small fields upon their outskirts. Living as they do, and possessing a soil which under irrigation is wonderfully productive, they require but little ground to cultivate."

Agricultural implements are admitted free of duty (*vide* p. 57). American reapers, mowers, plows, etc., have been introduced on the ranches of the northern and central part of the table-land. Time will, however, be required to induce the *peons* to abandon their rude ancestral tools that simply scratch the ground. Labor is abundant at three *reales* (37½ cents) a day. It is hardly necessary to remark that

the land will be best developed by the immigration of skilled farmers from Europe and the United States.

The following table, copied from Busto's *Estadística de la República Mexicana,* gives a list of the agricultural productions of the Republic. It will be seen that the proportion of maize is about four fifths of the total product, while that of wheat is but one twentieth. Oats are rarely cultivated, and rye not at all.*

PRODUCTS.	Pounds.	Value in Mexican dollars.
Chickling vetch (a kind of pea)	27,831,012	543,283
Cotton	55,391,072	6,605,831
Bene-seed	6,710,308	153,643
Canary-seed	2,467,025	57,410
Anise-seed	2,477,090	127,268
Indigo	422,941	358,002
Rice	33,366,493	1,248,244
Sugar and molasses	154,199,210	8,761,317
Cocoa	3,174,605	1,140,050
Coffee	17,514,877	2,060,382
Barley	511,134,850	4,403,742
Cumin-seeds	225,141	23,500
Peppers of all kinds	119,0 1,908	4,196,482
Brown beans (*frijoles*)	508,656,233	8,406,211
Peas	25,277,928	471,075
Beans	34,589,634	477,610
Hemp	88,176,000	3,352,000
Ixtle (a kind of hemp)	4,910,158	154,053
Lentils	4,625,775	83,043
Maize (Indian corn)	11,681,140,666	112,164,424
Potatoes	23,227,024	457,592
Straw	431,740,320	1,962,879
Tobacco	16,510,980	2,006,153
Wheat	747,349,004	17,436,345
Vanilla	121,248	651,958
Sarsaparilla	1,073,648	149,489
Total	14,452,954,787	177,451,986

* Compared with the United States, the annual corn-crop of Mexico is one ninth of that of the sister Republic; the wheat-crop is one forty-first, and the cotton-crop is but one forty-fifth. Maize being the principal article of food, the failure of the crop causes great suffering, as the poorer classes must then subsist on unripe fruit, berries, and roots.

XXX.

Maps and Surveys.

BARON VON HUMBOLDT was the first scientific traveler who made extensive astronomical observations and barometric measurements in Mexico. He determined the latitude and longitude, and the elevations of various cities and towns throughout the country. He also published charts and sketch-maps in his immortal work on New Spain.

No complete topographical survey of Mexico has ever been made, and we need not say that it would cost far more than the National Government could afford to pay in the present state of the finances.

The best atlas of Mexico has been compiled by Señor A. Garcia Cubas, being entitled *El Atlas metódico de la Geografía de la República Mexicana.*

The Mexican National Railway Company has published a large map, and Rand, McNally & Co., of Chicago, and Colton, of New York, have issued pocket-maps, of the Republic.

Several excellent maps have been prepared in France and Germany.

A good topographical map is published by J. L. Smith, of Philadelphia, Pa.

A map of the heart of Mexico, including the mountains of Popocatepetl and Iztaccihuatl, has been printed in New York, and is on sale in the shops of the Mexican capital.

A *complete* map, on a large scale, will soon be a possibility, considering the extensive surveys of the various railroads throughout the country. The boundary-lines of the public lands have never been determined, and the lack of accurate surveys is sadly felt at the present time. During the Spanish domination the grants to individuals were practically unlimited, as the grantees took possession of

immense tracts of land without defining the metes and bounds.

It is to be presumed that the Federal Government will authorize a general survey of their public lands at an early day.

XXXI.

Stock-Raising.

Soon after the Spanish Conquest, horned cattle, horses, donkeys, sheep, and hogs were exported in large numbers to Mexico from the mother-country. At the present time more attention is devoted to rearing horses, mules, and cattle than to other animals. The Mexican horse is of small stature, but possesses great endurance, and resembles the Arabian breed. The mules in Mexico are inferior in size to those of the United States, but are said to be capable of doing more work than the latter. Donkeys were introduced into New Spain by the priesthood, to take the place of the porters for carrying merchandise. (See chapter on labor and wages.) Cattle and sheep may be raised advantageously in most of the States of the Republic. The northern States, especially Tamaulipas, afford the best grazing-land. Several English companies have recently purchased large stock-ranges in Tamaulipas, Nuevo-Leon, and Sonora.

Excellent pasturage may be found in the valleys of Toluca and Orizaba. The former is noted for a superior breed of hogs. The greater part of the region that is used for grazing lies on the table-land. Most of the arable land in the *tierra caliente* and *tierra templada* is employed for agricultural purposes. The *haciendas* of El Salado and Cedres, in the central part of Mexico, are among the largest stock-ranches in the Republic. Artificial ponds and tanks for watering animals are common throughout the country.

Cattle-raising bids fair to become an important industry in Northern Mexico at an early day. The mildness of the winters admits of the stock feeding on the pastures, and there is no danger of losing the herd by a snow-storm. The natives are good herdsmen. It may be remarked, however, that marauding bands of Indians occasionally make raids on the stock-ranches, involving great loss to the owners. Ranches are usually sold by the *sitio*, which is equivalent to 4,428 acres. It is said that several large cattle-ranches in Northern Mexico are for sale at present. (*Vide* next chapter.)

XXXII.

Weights and Measures.

THE French metric system of weights and measures has been adopted in the Republic of Mexico, but in the rural districts the inhabitants have not done away with the old system (although it is no longer the legal one), of which we give a sketch.

MEXICAN LAND-MEASURES.

(Translated from the *Ordenanzas de Tierras y Aguas.*)

The Mexican *vara* is the same as the *vara* of Castile, and is divided into thirds or foot-fourths, sixths, and thirty-sixth inches. It equals 33⅓ inches, American measure.

Fifty Mexican *varas* make a measure called a *cordel.*

A Mexican league contains 100 *cordels*, or 5,000 *varas.*

The league is divided into halves and quarters. The half-league contains 2,500 *varas.*

Sitio de Ganado Mayor (*sitio*, a farm for raising cattle). —The form of a *sitio de estancia de ganado mayor* is a square whose sides measure 5,000 Mexican *varas.* The area of a *sitio* is 25,000,000 square *varas*, or 4,428 acres.

Criadero de Ganado Mayor (place for breeding animals).—It is a square equal to a fourth part of a *sitio de ganado mayor,* whose sides measure 2,500 *varas,* and contains an area of 6,250,000 square *varas.*

Sitio de Ganado Menor (farm for raising sheep or goats).—The form of a *sitio de estancia de ganado menor* is a square whose sides measure 3,333⅓ *varas.* Its area contains 11,111,111⅑ square *varas.*

Criadero de Ganado Menor.—It is a square whose sides measure 1,666⅔ *varas,* and its area contains 2,777,777⅞ square *varas.*

Caballeria de Tierra (33⅓ acres American measure).—The form of a *caballeria de tierra* is a rectangular parallelogram whose north or small side contains 552 *varas,* and whose greatest length is 1,104 *varas.* Its area contains 609,408 square *varas.*

Media Caballeria de Tierra.—It is a square whose side measures 552 *varas,* and contains 304,704 square *varas.*

Suerte de Tierra (lot of ground—a chance).—It is the fourth part of a *caballeria de tierra,* and the same figure, whose long side measures 552 *varas,* and 276 in width. It contains 152,352 square *varas.*

The *Caballeria de Tierra* is also divided into twelve *fanegas* of good seed-oats. The *faneya* is equal to three American bushels or a superficies of 8·5624 American acres.

Solar de Tierra (ground on which a house is built—town-lot).—Any parcel of land less than a *suerte.*

Solar para Casas (for houses, mills, and markets).—It is a square of 50 *varas*—2,500 square *varas.*

Fundo Legal (a piece of ground which is cultivated; town site).—It is a tract of land whose form is a square of 1,200 *varas* on each side, and contains an area of 1,440,000 square *varas.*

Porcion.—Porcion is a measure sometimes used. It is a tract of land 1,000 *varas* wide and 16,000 *varas* long.

Labor (a cultivated field).—A square containing 1,000,000 square *varas,* or 177 acres.

Texas Measure.—League and labor, 26,000,000 square *varas,* or 4,605 acres.

To find the number of acres in a given number of square *varas,* divide by 5,646, fractions rejected.

THE ENGLISH AND FRENCH SYSTEMS OF WEIGHTS AND MEASURES COMPARED.

The unit of the *metric* or French system of weights and measures is the *metre,* which is equal to 39·37 inches.

The Measures of Length are:

1 millimetre	=	·03937	inch.
1 centimetre	=	·3937	"
1 decimetre	=	3·937	inches.
1 metre	=	39·37	"
1 decametre	=	32·809	feet.
1 hectometre	=	19·8842	rods.
1 kilometre	=	·6213	mile.
1 myriametre	=	6·2138	miles.

Measures of Surface.

1 square centimetre	=	·155	square inch.
1 square decimetre	=	15·5	square inches.
1 square metre or	=	10·764	square feet.
1 centare	=	1·96	square yard.
1 square decametre or	=	3·954	square rods.
1 are	=	·0247	acre.
1 square hectometre, or 1 hectare	=	2·471	acres.
1 square kilometre	=	·3861	square mile.

Measures of Volume.

1 cubic centimetre	=	·061	cubic inch.
1 cubic decimetre or	=	·0353	"
1 litre	=	1·0567	liquid quart.
1 cubic metre, or 1 stere	=	35·3165	cubic feet.

Measures of Capacity.

The *litre* is the unit of capacity, both of liquid and of dry measures, and is equal in volume to one cubic decimetre.

	Dry measure.		Liquid measure.	
1 centilitre	= ·61	cubic inch =	·338	fluid oz.
1 decilitre	= 6·10	cubic inches =	·845	gill.
1 litre	= ·908	quart =	1·0567	quart.
1 decalitre	= 9·081	quarts =	2·64175	gallons.
1 hectolitre	= 2·837	bushels =	26·4175	"
1 kilometre, or stere	= 28·37 bushels 1·308 cubic yard	=	264·175	"
1 myrialitre	= 283·72	bushels =	2,641·75	"

Measures of Weight.

The *gramme* is the unit of weight, and is equal to a weight of a cubic centimetre of distilled water.

1 centigramme	=	·1543+	grain, troy.
1 decigramme	=	1 5432+	" "
1 gramme	=	15·432+	grains, "
		·03527+	ounce, avoirdupois.
1 decagramme	=	·3527+	" "
1 hectogramme	=	3·5274+	ounces, "
1 kilogramme or kilo	=	2·6792	pounds, troy.
		2·2046+	" avoirdupois.
1 myriagramme	=	22·046+	" "
1 quintal	=	112	" "
1 tonneau or ton	=	2204·62+	" "
		1·1023	ton.

N. B.—Except the table of the metric system, the preceding part of this chapter is taken almost *verbatim* from Castro's *Republic of Mexico.*

TABLE OF MEXICAN LAND-MEASURES.

NAMES OF LAND-MEASURES IN SPANISH.	Length in varas.	Width in varas.	Area or superficies in square varas.	Area in caballerias and decimals.	METRICAL SYSTEM.			American acres.
					Hectares.	Ares.	Centares.	
1 *Hacienda*	25,000	5,000	125,000,000	205,117	8,778	05	..	22,143½
1 *Sitio de ganado mayor*	5,000	5,000	25,000,000	41,023	1,755	61	..	4,428
1 *Sitio de ganado menor*	3,333⅓	3,333⅓	11,111,111	18,233	780	27	11	1,968½
1 *Criadero de ganado mayor*	2,500	2,500	6,250,000	10,256	438	90	25	1,107½
1 *Criadero de ganado menor*	1,666⅔	1,666⅔	2,777,777⅞	4,558	195	06	77	492 1/10
1 *Fundo legal para puebla* (town site)	1,200	1,200	1,440,000	2,363	101	12	31	255 1/10
1 *Labor*	1,000	1,000	1,000,000	1,641	70	22	44	177⅛
1 *Caballeria de tierra*	1,104	552	609,408	1,000	42	79	53	107 54833/100000
½ *Caballeria de tierra*	552	552	304,704	500	21	29	76	53 55419/100000
¼ *Caballeria de tierra or suerte*	552	276	152,352	250	10	69	88	26 55419/100000
1 *Fanega de sembradura de maiz*	276	184	50,784	83 1/12	3	56	62	8 56624/100000
1 *Solar para casa, molino ó venta*	50	50	2,500	4	..	17	55	

XXXIII.

Labor and Wages.

SLAVERY existed in Mexico before and after the Spanish Conquest, but it was abolished soon after the establishing of Mexican Independence. Formerly convicts worked in the cotton and woolen factories in company with free laborers; and Humboldt, in his *Political Essay on New Spain*, has spoken of the injurious effect of this system on the latter class.

Labor is now abundant throughout the Republic. In some of the larger cities the supply is greater than the demand. Skilled labor is rare among the natives, but they are capable of learning any trade. European labor has not thus far been largely introduced into Mexico. American negroes have been imported to a limited extent for the purpose of railway-construction.

The *peons* or day-laborers may be divided principally into two great classes, *i. e.*, those engaging in mining, and those who are employed on farms and ranches. The former class are much better workmen than the latter. They are not migratory in their habits, and will often remain in one mining district for a lifetime. The miners and millers work about seven hours daily. They are usually peaceable, and receive better wages than the agricultural *peons*. The latter are, as a rule, lazy and indolent. In the *tierra fria* and *tierra templada* they work from daylight to sunset, with a *siesta* at noon, while in the *tierra caliente* the hours of labor are from 5 to 11 A. M., and from 3 to 6 P. M. Women do not generally work in the fields.

A third class of workmen is employed in the factories and hotels, and by the railways. Male and female operatives obtain employment in the former.

A considerable number of the Indian population act

as public porters on the highways. Men and women engage in this occupation, and they use alpen-stocks while walking. An ordinary porter will carry a load of one



Mexican Porters.

hundred and fifty pounds for a distance of twenty miles daily. All kinds of merchandise are transported on the backs of porters.*

During the eighteenth century the Spanish priests are said to have imported donkeys or *burros* in large num-

* The author saw an Indian carrying a large sofa on the road from the City of Mexico to Cuernavaca. It was fastened to his body by means of ropes and straps passing across his breast and forehead, and extending under his arms.

bers to take the place of porters in carrying burdens (see p. 102).

The laboring classes of Mexico are exceedingly jealous of the introduction of labor-saving machinery. They regard it as an unwarranted means of preventing them from earning a living. Two recent events will serve to illustrate the antagonism of the *peons* to modern improvements.

Soon after the adoption of the compressed air-brake on the railroads of the United States, the Mexican Railway Company discharged several of their brakemen and introduced this improved brake on their trains. The company's servants rebelled against this system, and stole the stop-cocks from the air-pipes, thereby compelling their employers to reinstate them.*

Recently the owner of a large *hacienda* purchased an outfit of American agricultural implements. His *peons* saw in them an unjustifiable interference with their own methods of farming, and in the course of a few weeks the enlightened *hacendado* discovered to his surprise that his stock of instruments had been destroyed. These facts are significant, but fortunately the intense feeling against new inventions and improved machines is confined to the lower classes.†

The following table of wages will be found useful for reference. It is taken from Consul-General Strother's annual report for 1882, the figures being approximately stated:

Carpenters, per day	$1	00	to $1	50
Blacksmiths, per day	1	00	to 2	50
Upholsterers, per day		75	to 1	25
Shoemakers, per day		75	to 1	50
Book-binders, per day		75	to 1	00

* These facts were related to the author by a station-master of the Mexican Central Railroad Company.

† In constructing railroads, the contractors introduced the wheelbarrow among the *peons*. They carried it on their heads when filled with earth, and it was found that more work could be done with the gunny-bag held on the shoulders.

Turners, per day	$ 75	to	$1	00
Farriers, locksmiths, silversmiths (generally included in blacksmithing), per day	75	to	1	00
Tinners, per day	75	to		87½
Plumbers and gas-fitters, per day	75	to	1	00
Pattern-makers, molders (in foundries are paid by the piece), gilders, per day	75	to	1	25
Coach-makers, per day	1 50	to	2	00
Harness-makers and saddlers, per day	75	to	1	00
Stone-masons, stone-cutters, brick-layers (all under the same heading), per day	75	to	1	25
House-painters, per day	75	to	1	25
Quarry-men (paid by the piece), common laborers (*peons*), per day	37½	to		50
Porters, or *cargadores*, a course, per day	12½	to		50
Plasterers, plain and ornamental (per day)	1 25	to	1	50
Tailors (equivalent to per diem)	1 00	to	1	50
Hatters (equivalent to per diem)	87½	to	1	00
Cigar-makers (chiefly women), per diem	50	to	1	00
Seamstresses (per diem)	37½	to		50
Cotton spinners and weavers, woolen spinners and weavers (paid by the piece, equivalent to per diem)	1 00			
Factory-hands (per day)	50	to		75
Engine-drivers (per day)	1 00	to	1	50
Stokers (per day)	87½	to	1	50
Railway conductors (per day)	1 00			
Machinists (per day)	1 00	to	1	75
Printers (equivalent to per diem)	1 00	to	2	00

In the trades and occupations which may have been omitted in the above list, the current wages of journeymen will be found to vary but little from the average given. Skilled workmen from abroad are now frequently imported at conventional prices much higher than the foregoing.

N. B.—Foreigners intending to employ native laborers are strongly advised to put them under the control of a

"boss" who speaks the Spanish language, and who is familiar with their methods of work. The *peons* are amiable, and will generally give satisfaction with proper management; but they are exceedingly vindictive, and, if maltreated, will take vengeance on their oppressors at the first opportunity.

XXXIV.

Wines and Liquors.

ACCORDING to Prescott, the Aztecs manufactured *pulque*, and were in the habit of becoming intoxicated by its use. This is the case with their posterity, the Mexicans of the present day. The great national beverages are the various kinds of *pulque*, *mescal*, or *tequila*, and *aguardiente*, or brandy.

Pulque is the fermented sap of the *maguey* plant (*Agave Americana*), which is extracted from the heart as follows:

The stem of the plant is cut short, and a deep incision is made into the heart of it. After removing the surrounding leaves, the stalk is hollowed for several inches. The sap is gathered from this cavity two or three times daily, by means of an *acocote*. This instrument acts like a pipette. It consists of a long gourd, to each end of which a piece of sharp horn is attached. The *peon* inserts one end into the liquid, and, placing the other in his mouth, extracts the sap by suction into the body of the gourd. The juice is emptied into a jar or skin, which is carried on the back, and then it is taken to the cellar and allowed to ferment. A single plant of *maguey* will generally yield eight *cuartillos*, or one gallon, of sap in a day. The juice when extracted is termed *agua miel*, or honey-water.

Pulque is of a milk-white appearance, and resembles beer slightly in taste.

Mescal is also prepared from the *maguey*. The leaves are pressed in a mill, and the juice that runs out is distilled. *Tequila* is similar in taste. It is distilled from a small spe-



Pulque Tlachiquero.

cies of *maguey* called the *zotol*, which grows largely in Jalisco, especially near the town of Tequila, whence its name. Both *mescal* and *tequila* are transparent liquids.

Aguardiente is distilled chiefly from sugar-cane juice, but it is sometimes made from the juice of the grape. Be-

sides these liquors, there are numerous others that the stranger rarely hears of except in the rural districts, such as *charape, chicha, jobo, peyote, tecuin, tepache, tuba,* etc.

Pulque is made principally in the States of Mexico, Hidalgo, and Tlaxcala. The center of population being in this part of Mexico, accounts for the immense cultivation of the *maguey* in these adjoining States.

Mescal comes for the most part from Jalisco, Sinaloa, Puebla, Hidalgo, and Michoacan. *Aguardiente* is made chiefly in the sugar-growing States of Vera Cruz, Morelos, Michoacan, Jalisco, Mexico, Oaxaca, Yucatan, and Coahuila. *Pulque* is usually transported from the *haciendas* in sheep-skins; and *mescal* and *aguardiente* are carried in kegs.

The liquors above mentioned, however, are not the only ones which Mexico produces. The soil of the country is adapted to the culture of all kinds of grapes. Red and white wines are manufactured in comparatively small quantities, most of the native wines coming from the States of Chihuahua and Coahuila. But nearly all the wine consumed in Central Mexico is imported from France and Spain by merchants in Vera Cruz. Red wine is sold at from seventy-five cents to one dollar per quart bottle.

A limited amount of beer is also produced. It is made chiefly in the States of Guanajuato, Jalisco, Vera Cruz, Puebla, and the Federal District. Much St. Louis (Missouri) beer is imported, and sold at the high price of three *reales* per bottle in the northern part and four *reales* in the southern part of Mexico. The cocoanut-wine comes for the most part from Michoacan, Yucatan, and Campeche.

The following table, from Señor Busto's *Estadística de la República Mexicana,* shows the amount of wines and

liquors produced in the year 1879, together with their value:

WINES AND LIQUORS.	Pounds.	Dollars.
Brandy from grapes	1,169,467	114,453
Brandy from sugar-cane (*aguardiente*)	42,498,737	2,052,150
Beer	22,128,999	768,703
Mescal of Tequila	19,835,200	1,176,000
Common mescal	11,336,080	570,646
Pulque "tlachique"	168,146,213	323,232
Fine pulque	220,468,880	3,935,995
Common pulque	23,124,360	330,301
White wine	4,866,859	1,154,196
Red wine	7,765,380	1,508,475
Wines and various liquors	4,717,361	941,021
Cocoanut-wine	290,367	34,341
Total	526,349,903	12,909,513

XXXV.

Cigars and Tobacco.

SMOKING is universal in the Republic. The Mexican smokes at the theatre, in all public conveyances, in the shops, during meal-time, and even in church. Cigarettes (*cigarrillos*) are consumed in about the same quantity as cigars (*puros*). Mexicans when about to smoke will always offer cigarettes to by-standers, whether they are acquainted or not, and the refusal to accept will generally give offense.

The cigars made in the State of Vera Cruz are, perhaps, the finest in the country. They are very cheap. Choice cigars can be purchased at six *pesos* a hundred. The brand known as *La Giralda* is mild and very popular. Owing to the low price of tobacco, even the poorer classes smoke immoderately. The "weed" is used by men, women, and children.

Early Spanish historians tell us that tobacco, called

pycietl by the ancient Mexicans, was known to them before the Conquest. They were in the habit of smoking pipes and taking snuff. The Government derives a large revenue from the sale of tobacco. Mexico consumes about $18,000,000 worth of it annually.

Tobacco is not exported in considerable quantities, but Mexican cigars are generally found in New York and a few of the larger cities of the United States. (*Vide* chapter on agriculture for an account of the tobacco-culture.)

XXXVI.

Manufactures.

WHEN the Spaniards invaded Mexico, in 1519, they found the Aztecs possessed manufactures of considerable merit. The latter wore *escaupil*—a kind of armor made of quilted cotton, thick enough to be impenetrable to the light missiles of aboriginal warfare. The wealthier chiefs, however, sometimes donned a cuirass made of thin plates of gold or silver, and wooden helmets.

Soon after his arrival at Vera Cruz, Cortes sent cotton fabrics as presents to the Emperor Charles V. Historians tell us that cotton was perhaps grown, but certainly manufactured, in Mexico as early as in any other civilized country. The Spanish chroniclers of the time state, that the Aztecs made large webs as fine and delicate as those of Holland; that they wore cloths of different figures and colors, representing various animals and flowers; that feathers oftentimes made a part of the texture; that they manufactured mantles, gowns, and bed-curtains; and that a handsome cloth was also manufactured by taking the finest hair of the rabbit and spinning it into thread, after which it was interwoven with cotton.

The oldest cotton-factories are to be found in the city of Texcoco.

The Aztecs were familiar with the art of reducing silver, lead, copper, and tin. The process was, however, easy and simple. They formed an alloy of the two last-named metals, and wrought tools of bronze. With these implements they were able to cut not only metals, but, with the aid of fine sand, the hardest substances—as basalt, porphyry, amethysts, and emeralds (*vide* Prescott's *Conquest of Mexico*, vol. i, pp. 138, 139).

Besides making textile fabrics, working in metals, and hewing stone, the ancient Mexicans molded pottery on a large scale, and manufactured from the *maguey* (*Agave Americana*) a variety of articles, such as paper, thread, and cords from the leaves (which were also used to thatch roofs), pins and needles from the thorns, and *pulque* from the fermented juice of the stem.

Owing to the restrictions imposed by the Government, manufactures did not thrive during the rule of the viceroys. Still, the cotton and woolen factories were preserved, the metals were reduced from the ores, and soap, wax, sugar, pottery, *pulque*, and a few other articles were produced. The frequent revolutions and the instability of the Federal Government since the War of Independence have greatly retarded manufacturing industry. Fuel being exceedingly scarce, steam is even now rarely used in the factories and reducing-works; but water-, mule-, and man-power are generally employed. In his long tour through the Republic in the winter and spring of 1883, the author noticed only one sugar-mill, one silver-reducing-mill, two cotton-factories, and a flour-mill, that were run by *steam*. In the latter case an aqueduct was in course of construction to conduct water to the mill as a motive power. On account of the configuration of Mexico, there is abundant water-power just below the border of the *tierra fria* and in some parts of the great

plateau. Few things, comparatively, are manufactured at the present day. The establishment of industrial schools, however, in the cities of Guadalajara, Mexico, Puebla, and Orizaba, and recent industrial expositions in these cities, have given an impetus to domestic industry. The Hercules cotton-mill at Querétaro furnishes employment to 1,400 operatives (for description, see Section V). It is by far the largest mill in Mexico. A few others have been erected by French and German capitalists in the central part of the Republic.

A company has recently been organized at Mapimi, in the State of Durango, to manufacture cotton goods at a place known as Ojo de Agua. The region affords fine water-power, and the factory will be started with forty looms. Small tread-mills are used extensively in making woolen cloths and blankets or *zarapes*. There are a few small silk-factories.

Although the *data* are wanting to give an *accurate* list of all the manufactures of Mexico, together with their amount and value, we will take the following figures from Señor Busto's great work on Mexican statistics: The number of factories in Mexico is 99; their value in machinery, $4,690,776; and in buildings, $4,816,999—making a total of $9,507,775. They contain 258,458 spindles and 9,214 looms. Their annual consumption of cotton amounts to 258,962 quintals,* and of wool to 59,240 *arrobas.* † The number of operatives employed is 12,346.

The manufactures of the country may be concisely stated as follows: Cotton and woolen goods; hats of straw and felt; leather-work of every kind; soap;‡ wax, either in the form of candles, matches, or *ex votos;* silk; glass; furniture; pottery; marble-work; rope; palm-leaf work of all kinds, as matting, baskets, brooms, brushes, etc.; a few

* 29,003,744 pounds. † 1,481,000 pounds.

‡ Much soap is made in Guadalajara, Puebla, and Mexico.

kinds of paper;* diligences and carts; flour; sugar; chocolate; indigo; tiles; and *adobe,* or sun-dried brick; also wine and liquors, which are described in a separate chapter (*vide* p. 115).

N. B.—None of these articles are exported to any extent.

XXXVII.

Native Productions.

THIS chapter is designed to supplement the preceding one on manufactures. The Indians of to-day make various articles that were in common use among their Aztec ancestors.

The *plumaje,* or feather-work, which is sold in the shops at the capital, resembles that made in Montezuma's time; but, instead of being interwoven with a cotton web, the feathers are put together in various forms and attached to a card-board.

Different varieties of artificial birds are constructed in this manner, the gorgeous colors of the parrot tribe and the delicate down of the humming-bird affording excellent material for a beautiful model. Some of these birds are of life-size, but most of them are on a reduced scale. The modern Mexicans do not make knives, razors, and serrated swords of *itztli,* or obsidian, but the tourist may find fragments of this material on sale in the *portales* of the City of Mexico.

Pottery is manufactured on a large scale (*vide* preceding chapter). It comes mostly from Guadalajara, Uruapan, and Zintzuntlan. The Guadalajara ware is glazed and variegated in color. It is molded into all kinds of figures, many of which are artistic in design, and illustrate the national costumes. Aztec pottery is now very scarce.

* There was no paper-factory up to 1803.

Numerous imitations are made, however, and travelers are cautioned against paying high prices for the spurious article. Rag figures dressed in Mexican costumes are sold extensively by the Indians. All kinds of baskets composed of gayly-colored fragments of the palm-leaf are cheap and abundant. The *zarapes* are described in the chapter on costumes. Every variety of leather-ware is made in the country. Besides leathern clothing and foot-gear, bridles, saddles, whips, etc., are manufactured, which are oftentimes of exquisite workmanship. The author saw a silver-mounted saddle belonging to a wealthy young *hacendado* that was valued at $1,000. It weighed forty pounds. The Mexican onyx, or *tecali*, is wrought into paper-weights and small vases, and even into mantel-pieces. The pale-green variety of this stone is very beautiful. Tourists are recommended to purchase ornaments of *tecali* either at Puebla or at the capital.

Choice embroidery (*bordado*) is made in Mexico. This work is done on velvet, silk, cloth, or muslin. Gold and silver thread is commonly used to embroider velvet and silk. The vestments of the priests are trimmed in this manner (*vide* chapter on the Church). Felt hats are usually adorned with silver thread. The most beautiful piece of native needle-work on exhibition is found on the throne of the *Sala de Embajadores*, at the National Palace in the capital. It consists of the Mexican coat-of-arms embroidered with gold thread on dark velvet.

Ladies wishing to purchase ornamental specimens of needle-work should have them made to order, as Mexican shopkeepers rarely have choice embroidery in stock. There is no fixed price for this class of work; accordingly, strangers are advised to bargain with the dealers.

Owing to the small number of artists, paintings which delineate Mexican scenery or costumes are seldom offered for sale. Photographs of the places of interest, both in

town and country, and also of the national dress, may be purchased in all the large cities.

XXXVIII.

Jewelry.

MEXICAN jewelry has justly acquired a world-wide fame. When the Spaniards invaded the country, they acknowledged that the gold and silver-smiths of the Aztec Empire excelled those of their own land.

The precious metals were used in casting vessels, some of which were said to have been so large that a man could not encircle them with his arms.

Gems like opal, turquoise or *chalchihuitl*, ruby, agate, heliotrope, and chalcedony, were mounted in gold; and artistic filigree-work in both gold and silver was made extensively.

According to the accounts of the early Spanish chroniclers, the ornaments worn by Montezuma must have been equal in elegance to many of the crown-jewels of the imperial families of Europe.

At the present day the traveler will not meet with any large specimens of silver-ware, excepting the exquisite service of Maximilian, which is on exhibition in the museum at the national capital.

The modern jewelers confine themselves principally to the manufacture of watches, chains, necklaces, brooches, pins, buttons, and other articles for personal adornment. The filigree-work in silver is worn extensively, but that of gold is seldom used.

Chapetas, or silver studs for hats, are made in large quantities. They are in the form of stirrups, revolvers, ropes, horse-heads, bull-heads, spurs, and other figures. These *chapetas* are fastened on either side of the crown

(see chapter on costumes). Silver ornaments are sold at a low price, and they make handsome presents for tourists to purchase. The smallest and cheapest figures are *ex votos* in the shape of arms and legs.

XXXIX.

Theatres.

THEATRES may be found in all cities and towns of the country. The Mexican has inherited from the Spaniard his love for the drama. Many of the plays put upon the stage are translated from the French, the number of native dramatists being very small. Many traveling operatic and theatrical companies visit Mexico in the winter season. The *opéra-bouffe* is given every year.

Sunday night is the most popular time to go to the theatre. The prices of admission are lower than in the United States. A seat in the parquet, or *patio*, generally costs one *peso*. Smoking is allowed there.

Ladies wishing to visit the theatres should procure tickets in a box or *loja*. They are plain edifices, with little interior decoration, and are commonly built with an elliptical auditorium, which has several tiers of boxes ranged one directly above the other, reminding the traveler of *La Scala* at Milan.

XL.

Music.

THE Mexican people are very fond of music. There are excellent military bands in all the cities and garrisoned towns, where a pagoda is generally erected in the main *plaza*. They usually play three evenings in the week,

when the "swell" population turns out to enjoy the music. Travelers will find pianos all over the country, even in towns 500 miles distant from a seaport or railway terminus. Violins and guitars are also used, the latter being common among the Indians and mestizos. Wandering street musicians are rare.

There is not much original Mexican music; the national hymn, consisting of ten verses, being the best known. It was written by Bocanegra, and set to music by Nunó.

The following is a metrical translation of the chorus and first two verses of the national hymn of Mexico:*

CHORUS.

Mexicans, haste to fight and bleed!
Make ready sword and bridled steed;
Let the earth tremble to its core,
Exulting in the cannon's roar.

First Stanza.

Oh, may the olive-branch of peace,
Dear Fatherland, wave over thee;
For writ in heaven, by God's own hand,
Is thine eternal destiny.
And if the foe, with foot profane,
Invade thy soil, O sacred land!
Each son of thine, a soldier born,
The fierce invasions shall withstand.

Second Stanza.

Behold them plunged in bloody strife;
The love which animates each heart
Impels them on to give their life,
And e'er count death the better part.
The former exploits of thy sons,
O Fatherland, remember now,
And once again immortal crowns
Of laurel shall adorn thy brow.

* Arranged for the author by E. E. J.

The singing in the churches is of a high order, and the choir-boys have exquisite *alto* voices.

XLI.

Dances.

MEXICANS are likewise passionately fond of dancing. Public balls (*bailes*) are frequent all over the Republic. In the capital they are held on Sunday nights, while in the smaller cities Saturday is the more common evening for them. Private balls are given by subscription in the principal cities, to which tourists may obtain invitations through some banker or merchant.

It is rare to have a *tertulia*, or evening-party, without dancing.

XLII.

Festivals.

THE festivals of Mexico were formerly of a religious character, but since 1856 they partake of a political nature. The following is a list of the principal days on which the national flag is displayed :

February 5. Anniversary of the Constitution of 1857.

February 22. Birth of Washington.

March 14. *Santo* of the King of Italy.

March 21. Birth of Benito Juarez.

April 1. Opening of the session of Congress.

May 5. Anniversary of the defeat of the French at Puebla.

May 8. Birth of the Curate Hidalgo.

May 15. Capture of Querétaro in 1867.

May 31. Close of the session of Congress.

* *Santo* means the anniversary of the birthday of the saint after whom the king is named.

June 21. Capture of Mexico in 1867.
June 30. Anniversary of the reformation in Guatemala.
July 4. Independence of the United States.
July 18. Anniversary of the death of Juarez.
July 20. Independence of Colombia.
July 28. Independence of Peru.
July 30. Death of the Curate Hidalgo.
September 15. Independence of Guatemala.
September 16. Independence of Mexico.
November 15. *Santo* of the King of the Belgians.

XLIII.

Bull-fights.

THE bull-fight, or *funcion de toros*, is the national *fiesta* of Mexico, and is one of the objectionable legacies of the Spaniards. Bull-fights take place on Sunday afternoons. The best performances are at Huisachal, a suburb of the capital. They are forbidden by law within the city limits. There are bull-rings (*plazas de toros*) in all cities and towns. Several of the larger cities have two. The rings in Mexico are commonly of wood,* and are built in the form of an amphitheatre. The seats are classified into those in the shade (*sombra*) and those in the sun (*sol*). The former are, of course, preferable, and cost more than the latter.

Most of the bull-fighters are Mexicans, but at the present time (1883) a famous Spanish *maestro*, named *El Chiclanero*, is "starring" in the Republic. Bull-fighters, or *toreadores*, are agile men, of rather slender build, and do not usually exceed the medium height. They seldom possess great physical strength, but are expert jumpers. They are divided

* The Spanish bull-rings are made of brick or stone.

into four classes: the *espadas*, or *matadores*, who kill the bull with a sword; the *banderilleros*, who thrust barbed darts into his neck; the *picadores*, who ride jaded Rosinante-hacks, and strike the animal with their lances; and the *chulos* and *capas*, who tease him with gayly-colored cloths, and assist the *toreadores* generally.

The bull enters the arena at the sound of a trumpet, and is in turn attacked by the above-named classes of fighters. When the persecuted beast falls from exhaustion and loss of blood, he is killed by the *cachetero*, who thrusts a small dagger into the nape of the neck, just above the spinal column. The body is then dragged out of the ring by a trio of mules, amid the deafening yells of the crowd, the band playing at the time. The carcass is sold to the butcher. Unlike the *funciones* of Spain, the horses are protected with huge leather covers, and the tips of the bull's horns are sometimes sawed off.

XLIV.

Cock-fights.

COCK-FIGHTS, or *peleas de gallos*, take place all over the country. The cock-pits are light pyramidal structures that are made of wood, with a thatched roof, and open at the base.

Cock-fighters, or *galleros*, are frequently seen in the streets, each carrying a game-cock, with a string tied to its leg. Sunday afternoon is the favorite time for cock-fighting.

Occasionally the inhabitants of rival towns will have a match, when representatives of each will send picked game-cocks to engage in the fight. The event is announced, weeks beforehand, by gaudy bills posted on the sides of the public buildings.

It may be remarked that cock-fights are likewise common in the Territory of New Mexico, although bull-fights are unknown. The most popular season for cock- and bull-fighting is during Lent.

XLV.

Costumes.

THE upper classes, especially the Government officials, in Mexico, have recently discarded the national costume, and now wear the European dress. Black coats and silk hats are as commonly seen on the *Plaza mayor* of the City of Mexico as on Broadway or Fifth Avenue.

There is a great variety of costumes, however, among the country gentlemen, and among both sexes in the lower classes. The Mexican hat, or *sombrero*, is the most prominent part of the national dress. It is either of felt or straw, and has a very wide brim. When made of the former material, the color varies from light gray to brown and black. The crown is trimmed with a silver band, and the brim is oftentimes heavily embroidered with silver thread. The cords around the crown are either single, double, or quadruple, and small silver ornaments called *chapetas* are attached to both sides of it. Straw hats are generally provided with puffed bands of the same material, and occasionally silver cords are worn on them. The peasantry wear plain straw hats and white cotton shirts and trousers. Cloaks of water-flags or palm-leaf strips are used by the Indians. They are impervious to the rain.

A *zarape*,* or blanket woven either of woolen goods or of both wool and cotton, is worn in the early morning and in the evening. An infinite variety of patterns may be seen in these *zarapes*. Stripes of various shades of red, yellow,

* Sometimes spelled *serape*.

and brown, are the prevailing colors. Unlike the *ponchos* and *mangas* of Spain, the *zarapes* are thrown over the shoulder, instead of inserting the head through a hole or slit in the middle. However, some of the latter style of blankets are worn, especially by diligence-drivers and donkey-boys. Stage-coachmen also wear leggings embossed with large nail-heads.

Huaraches, or leathern sandals, fastened with straps over the instep and across the ball of the foot, take the place of boots or shoes among the lower classes.

The usual style of dress among the peasant-women consists of a white waist and skirt, with a blue scarf or shawl (*rebozo*). These simple colors remind the traveler of those adopted by Murillo in his paintings of the Virgin. Straw hats, like those worn by the poorer class of men, are donned by the women.

The ladies in cities are generally dressed in plain black, and without a bonnet. They carry black silk parasols and black fans. The *mantilla* is now generally disused. Since 1881 young ladies, especially in the City of Mexico, have begun wearing hats of foreign make and dresses of various colors.*

The *hacendados* and country gentlemen usually wear suits of black cloth, consisting of a short jacket with silver buttons, a waistcoat cut low, and pantaloons opening on the outside of the leg, with two rows of fancy silver buttons along the outer seam. A *faja*, or sash, which is commonly of a red color, is added to the costume, and the boots are made with high heels. This dress is worn in the *tierra fria*, and in the upper part of the *tierra templada*. In the *tierra caliente* the gentry wear plain white cotton suits with *sombreros* of felt or straw. In riding through

* The American consul at the capital informed the author that, in 1880, his wife was compelled to send to the United States for a bonnet, being unable to purchase one in the City of Mexico.

the underbrush, *chaparraleros*, or loose leathern trousers, are worn over the ordinary pantaloons. Except in the large cities, swords or *machetes* are usually attached to the saddle-bow.

XLVI.

Lotteries.

FOLLOWING the example of Spain, lotteries were introduced into Mexico many years ago, and are now an important source of revenue. Lottery-tickets are sold in all the cities by men, women, and children. They are found on the *portales* of the *plazas*, at the doors of hotels and cafés, and on the street corners. The Government receipts from lotteries were:

In 1880–'81	$32,856.
In 1881–'82	60,000.
In 1882–'83	800,000.

XLVII.

Stores.

ACCORDING to Prescott, there were no shops in the Aztec Empire. Goods and wares were sold in the market-place. Fairs were held at short intervals, and the merchants were itinerant traders. Under the Spanish domination, the system was greatly modified. With the importation of merchandise from the mother-country came the gradual introduction of shops. They have undergone a great change since 1870. The shops usually have fanciful names, such as "The City of Paris," "The Azure Boot," "The Red Gown," etc.

While household ornaments, books, hardware, crockery,

leather-work, and a few other articles, were formerly on sale in considerable quantities, wearing-apparel suitable for Europeans was almost unknown. A new era of trade has dawned upon the Republic since the introduction of American railroad enterprise. The foreign resident need no longer send to New York, London, or Paris for luxuries and fashions. All kinds of clothing can now be made at short notice; and preserves, canned goods, hams, wines, confectionery, and other articles which the European requires, are found in the shops. The finest mercantile establishments are in the cities of Puebla and Mexico. French is spoken in many of them. The shops on the *Calle de San Francisco*, on the *Plateros*, and on the *Plaza mayor* in the capital, are commodious, and contain a fine assortment of goods. Some of the clerks speak English. Strangers are charged exorbitant prices, so it is advisable to *marchander* with the salesmen.

XLVIII.

Pawnbroker-Shops.

THESE institutions are controlled by the Government, and exist in all the cities of Mexico. They are termed *monte de piedad*, or *montepio*.

There is a large *monte de piedad* in Puebla, and a central office with several branches at the capital. The articles deposited as security for loans in the pawnbroker-shops are chiefly wearing-apparel, leather-work, jewelry, and fire-arms. The Government officers set a price on goods forfeited to the *montepio*. If they are not sold within a few weeks, a *second* price is fixed. Should the articles fail to find a purchaser at the reduced valuation, they are appraised again. They are then kept for an indefinite period, till the *third* price is paid.

Travelers can occasionally find rare and valuable objects at these shops. The bills of the national *monte de piedad* circulate at par throughout the country.

XLIX.

The Church.

Up to the year 1859 one third of all the real and personal property in Mexico was owned by the Church. Many of the finest buildings, as well as large tracts of land in the heart of the large cities, belonged to the clergy.

The bishops' palaces at Puebla and at the capital contain so many deeds, leases, etc., that they remind one of a county clerk's office, rather than the residence of a high ecclesiastical dignitary.

All churches and convents in Mexico are built of the most costly materials and in the most substantial manner. Lofty towers are usually added to the churches, and their façades are oftentimes exquisitely carved. (See chapter on architecture.) The interior decorations, paintings, furniture, and the services, are artistic in character. They were imported from Europe and transported by wagons for distances varying from one hundred to six hundred miles at great expense.

The high altars as well as the stalls of the choir are beautifully carved, the former being usually gilded. Large organs are found in the cathedrals and principal churches, and occasionally the same building will have two of them on opposite sides of the choir. In the Morelia * and Guadalupe cathedrals, there are silver railings around the edge of the high altar and leading thence to the choir. Many of

* The silver railing at Morelia was removed by the Liberal party during the Reformation.

the doors in the tabernacles are made of silver. The beautiful *tecali*, or so-called Mexican onyx, is used extensively for altars and fonts. (*Vide* chapter on Morelia, in Section IV.) Most of the churches are furnished with wooden settees. *Prie-dieux* are unknown.

A large number of the churches are rapidly falling into decay, and many of them are now used for business purposes, *e. g.*, barracks, warehouses, marble-works, etc. During his extensive tour through Mexico, in the winter and spring of 1883, the author saw but a single instance of a church undergoing repairs, viz., on the *plaza* of Indaparapeo in Michoacan. Several of the convents adjoining the churches are at present in ruins, while others have not been occupied for years, and some of them are now altered into hotels, as at Zacatecas and Monterey.

These institutions are crowded together into the cities and towns, none being found in the rural districts as in Europe. (*Vide* chapter on population.)

It is a universal custom to hang *ex votos* on the walls of the churches. They are either made of silver or wax, or consist of small paintings of the Virgin Mary.

Various notices invoking *pater-nosters*, or *aves*, for the repose of the souls of departed friends, or soliciting alms for certain purposes, are printed on paper of several colors and posted on the main door of the churches. Religious tracts, and ribbons giving the size of the head of some particular saint, are sold at the entrance to many of the cathedrals and chapels, especially during the lenten season.

A typical church-scene in Mexico is a number of men clothed in white-cotton garments, with *zarapes* of variegated colors on their shoulders, with broad-brimmed straw hats in their hands, and wearing *huaraches*, or leathern sandals, kneeling on a stone floor in company with women and girls, who are dressed in calico and wear a black shawl over the head and shoulders.

The vestments worn by the priesthood while celebrating high mass are very costly, and consist of silken robes heavily embroidered with gold and silver thread. When appearing in the street the priests usually wear the ordinary cloth gown and cloak. It is, however, forbidden by law in some parts of the country, *e. g.*, in the Federal District, for the clergy to walk the streets in the garb of their order.

As regards the power of the Church in Mexico at the present day, it may be said that it is almost entirely lost, except in a few States like Michoacan. The politicians, however, make extravagant promises to the clergy, in the hope of securing their good graces in the elections. In the northern States the priesthood are becoming less influential from day to day.

Flag-staffs have been erected on the façades of the principal churches, from which the national colors are displayed. In the City of Mexico the ringing of bells is restricted by statute to the period of three minutes at one time; and the space of one half hour must elapse before they can be again sounded.

The hold of the Catholic clergy on the Mexican people is confined principally to the laboring classes. It is a common saying that, when a *peon* earns two dollars, he gives one dollar and forty-five cents to the priest, spends fifty cents for *pulque*, and supports his family on the remainder.

Among the more highly educated classes, the men are indifferent to religion, and oftentimes refuse to allow their wives and daughters to visit the confessional. They charge that the priest learns the pecuniary condition of the *paterfamilias* through the female members of the household. In 1882 the clergy in the Republic were estimated to number ten thousand.

Notwithstanding the comparatively long period in which the Liberals have been in power in Mexico, the hostility between the Catholics and Protestants is as intense as ever.

The priests still threaten to excommunicate *peons* who work on buildings or farms owned by the Protestants. Since 1870 the Liberal Government has favored the establishment of Protestant churches throughout the country. During the administration of President Juarez a fine parish church was presented to the Protestants in the national capital. Their missions have since been founded in Puebla, Cuernavaca, Zacatecas, Monterey, and many other cities.

As recently as December, 1882, a collision took place between the Roman Catholics and Protestants at Zacatecas. The former attempted to demolish a chapel which was owned by the latter, when the military came to the rescue and dispersed the rioters with bloodshed. The State governments are generally disposed to protect the Protestants, and accordingly offer convict-labor to complete their houses of worship, when the *peons* can not be employed.* In Chihuahua the Americans now attend divine service at the residence of the pastor, the Rev. Mr. Eaton.

N. B.—Foreigners, intending to engage in either mining or farming in Mexico, are strongly advised to conciliate the *padre*, as he is usually the most influential person in small towns and villages. Considering the influence of the clergy on the lower classes, discourteous treatment of the priest may result in the refusal of the *peons* to work for the offending individual.

L.

Jurisprudence.

THE Roman law prevails in Mexico, and a code, based upon the *Code Napoléon*, has been adopted.

There is a written Constitution and a system of statutes

* The chapel at Zacatecas was rebuilt by convicts.

for the Republic. Each State has also its own laws, which are administered independently of those of the Federal Government. Trial by jury occurs in criminal cases only. Felonies are punished by long terms of imprisonment, while the penalty for misdemeanors is generally a fine ranging from twenty-five cents to several hundred dollars. The former amount is the equivalent of one day's wages for certain classes of laborers.

Of late years, the authorities have ordered a great many brigands to be shot without a trial. In the State of Zacatecas, two hundred persons, who were known to be bandits, are said to have been killed in a single year.

Life and property are now as safe in Mexico as in the United States.

Europeans residing in Mexico complain of the system of keeping prisoners in close confinement for a long period *without* a trial. The prisons are damp and unhealthy, and the fare is of the worst quality.

The rules of practice for filing documents in the public offices are different from those of the United States. *Original* wills, deeds, mortgages, etc., must be recorded in blank books and deposited in the proper office. These are provided by the municipal government. None but interested persons can obtain copies of them. Deeds and other instruments executed as far back as the year 1540 are on file in the register's office of a few cities.

All deeds, leases, contracts, etc., must be executed before a notary (*escribano publico*).

Stamps must be affixed to all kinds of instruments, and a *rubrica*, or dash of the pen, must be added to a signature to make it legal.

At present aliens can take real estate by deed and devise, but they can not own land within twenty leagues of the frontier line, or less than fifteen miles from the coast, except by special permission of the Executive.

"Any foreigner who desires permission to own real estate within the above-mentioned limits, must address his petition to the Secretary of Public Works at the City of Mexico, accompanied by a report from the government of the State or Territory where the property is situated.

"The foreign proprietor of real estate forfeits his rights of possession under any of the following circumstances:

"1st. By being away from the Republic with his family for more than two years without permission from the General Government.

"2d. By residing outside of the Republic, even though he has a representative residing upon his property or in the Republic.

"3d. By transferring or conveying said property by inheritance or any other means to any person non-resident in the Republic.

"Any foreign property-owner, who may fall into any of the three conditions above stipulated, is compelled to sell his real estate to a Mexican citizen, within two years from the date of his absence from the Republic; or, in case he fails to comply with this prescription, the public authority will effect the sale of the property, depositing the proceeds of it to the order of the owner of the property. If said sale has been made by 'denouncement' of the property, one tenth of the proceeds shall go to the person who made the 'denouncement' and the balance to the absent foreigner. . . . Aliens who are members of a mining company that has either discovered or reopened any abandoned mine are exempt from these rules.

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"Foreigners who have acquired real estate from private owners, or the Government of Mexico, are subject to all kinds of taxation, and are bound to do military duty whenever called upon to protect the property they have acquired, or preserve public order and tranquillity in the place where they reside, and are bound to take part in the elucidation of all questions that may arise in regard to said property, according to the existing laws, and before the tribunals of Mexico, without ever appealing to their rights of foreign citizenship, or to any intervention from a foreign power."

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"Grantees of public lands are compelled to locate on their grant

at least one inhabitant for every two hundred hectares,* who shall reside thereon without interruption during ten years, not being absent more than *four* months during each year. In failing to comply with this clause of the law, they will forfeit their right to the land, as well as the price paid for it.

"Any person enabled to hold property by 'denouncement' of public lands can not obtain more than 2,500 hectares,† by virtue of the law of limitation, until he has had possession of the land for ten years, and has complied with the other requisites of law, and those prescribed in the above clause."

These extracts from the laws of Mexico are taken from Castro's *Republic of Mexico,* pp. 188–190.

Lawyers who have taken a degree are termed *licenciados.* The leading counselors of the principal cities can generally speak English. Very few foreigners have thus far begun the practice of law in the Republic. Excepting the Supreme Court at the capital (*Suprema Corte*), the court-rooms are open to the public. The judges sit from 9 to 12 A. M., and from 3 to 5 P. M. The jurisdiction of the inferior tribunals (*juzgados*) resembles that of the county courts of the United States.

For further information on the laws of Mexico, consult the following Spanish works: *El Protocolo, El Codigo, El Nuevo Escribano Instruido, Las Ordenanzas de Tierras y Aguas,* and *Las Ordenanzas de Minería.* The latter consists of mining laws.

LI.

Education.

UNFORTUNATELY, a small portion only of the Mexican people are able to read and write. The number of

* 494⅛ acres. † 6,177½ acres.

illiterate persons can only be estimated, as there are no accurate census returns. We are of the opinion that it amounts to 6,500,000, or about two thirds of the entire population.

Colleges (*colegios*) have been established in the principal cities for many years. There are schools of the arts, of law, of medicine, and of science. The *Colegio de Minería*, or mining school, in the capital, was founded about the close of the last century. (See chapter on the City of Mexico in Part Second.)

The traveler should not, however, be misled by this term "*colegio*." It is often used in the rural districts as synonymous with "school," very much as it used to be in the Western States of the Union. Soon after the French invasion, a common-school system similar to that of the United States was introduced into Mexico. The English language is now generally taught, and even many business men are studying it with a private tutor. A few industrial schools have been established in the larger cities. Mexican children are said to be very docile pupils, and in the hands of good instructors they learn readily. Among the wealthier families, it is common for parents to send their sons abroad to be educated, as to New York, London, or Paris; and a few Mexican students may be found in the universities and mining schools of Germany.

Young women and girls attend only the parochial schools of the country, and the higher education is unknown among them. The completion of the American trunk-lines of railroad may tend to increase the number of young men who go to the United States annually to "finish" their education.

The following table is taken from Castro's *Republic of Mexico*, p. 200. It shows the number of public schools in the States and the Territory of Lower California, and the cost of their maintenance for the year 1880:

STATES.	Male schools.	Female schools.	Total.	Number of male pupils.	Number of female pupils.	Total number of pupils.	Annual cost of the schools.
1. Aguascalientes	53	26	79	4,800	1,200	6,000	$10,000
2. Campeche	43	14	57	3,600	700	4,300	15,000
3. Coahuila	70	30	100	5,230	2,127	7,357	26,000
4. Colima	18	17	35	1,452	1,502	2,954	18,000
5. Chiapas	78	12	90	2,125	500	2,625	10,000
6. Chihuahua	73	40	113	3,350	928	4,278	28,473
7. Durango	95	30	125	3,102	1,350	4,452	20,000
8. Guanajuato	176	145	321	10,754	7,045	17,799	81,386
9. Guerrero	392	28	420	13,006	1,755	14,761	34,965
10. Hidalgo	442	76	518	15,819	3,371	19,190	82,287
11. Jalisco	439	275	714	28,376	11,160	39,536	100,000
12. Mexico	887	181	1,068	41,321	10,245	51,566	187,216
13. Michoacan	154	89	243	7,000	3,200	10,200	52,756
14. Morelos	47	40	87	8,209	5,387	13,596	22,866
15. Nuevo-Leon	181	104	285	8,928	4,732	13,660	68,000
16. Oaxaca	234	47	281	16,420	3,296	19,716	50,982
17. Puebla	889	118	1,007	50,320	15,000	65,320	153,000
18. Querétaro	101	62	163	6,271	2,922	9,193	30,000
19. San Luis Potosi	183	56	239	9,486	3,690	13,176	40,000
20. Sinaloa	238	42	280	6,600	2,600	9,200	58,000
21. Sonora	80	25	105	3,500	740	4,240	20,030
22. Tabasco	48	17	65	2,695	525	3,220	20,000
23. Tlaxcala	176	18	194	8,100	1,550	9,650	20,000
24. Tamaulipas	60	...	60	4,000		4,000	10,000
25. Vera Cruz	580	149	729	20,021	5,937	25,958	218,935
26. Yucatan	163	39	202	8,659	2,643	11,302	50,000
27. Zacatecas	311	178	489	13,738	6,653	20,391	72,000
Ter'y of Lower California	17	9	26	677	367	1,044	10,000
Total	6,228	1,867	8,095	307,559	101,125	408,684	1,510,446

LII.

Newspapers.

ABOUT sixty newspapers are published in Mexico. Most of them are printed in Spanish, and some are in French and in English. In the City of Mexico there are several daily papers in Spanish and two in French. The *Monitor Republicano*, which has an edition of about seven thousand copies, is said to have the largest circulation, while that of many of the other newspapers does not exceed five hundred. One semi-weekly English paper, *The Two Republics*, and one weekly journal half in Spanish and half

in English, *The Financier*, are also published at the national capital. A few American newspapers may be found in Chihuahua. All of them devote a large space to advertisements.

Under the administration of Santa Anna began the subsidy of the press. Subventions are now given to papers that can not be published except at a loss.

Formerly a special jury took cognizance of the offenses of the press, but a constitutional amendment passed in 1883 brings these offenses under the jurisdiction of the ordinary courts.

LIII.

Miscellaneous.

AMERICAN consuls or vice-consuls reside at the following towns:

Acapulco, Batopilas, Camargo, Campeche, Chihuahua, Guadalupe y Calvo, Guaymas, Guerrero, La Paz, Manzanillo, Matamoros, Mazatlan, Merida and Sisal, Mexico, Minatitlan, Monterey, Musquiz, Nuevo Laredo, Paso del Norte, Piedras Negras, Progreso, Saltillo, San Blas, San José, San Luis Potosí, Tampico, Tuxpan, Vera Cruz, and Zacatecas.

There are no English consuls, but the British Government employs private agents.

Doctors intending to practice in the Mexican Republic should learn at least one language besides Spanish, *i. e.*, either French or German.

Reliable interpreters can be found in the principal cities only.

The value of real estate is increasing in the large cities. The landlords are unwilling to sell unless at an exorbitant price; accordingly, foreigners intending to engage in trade

or manufacturing will do well to lease property for long terms, instead of purchasing it.

In 1881 the value of city property was.....	$169,684,376 52
And that of rural property was.....	181,873,994 04
Total.....	$351,558,370 56

Americans are gradually introducing their inventions into Mexico. The Government, being anxious to establish and encourage home manufactures, has already issued many patents to citizens of the United States for new machines and improved methods of utilizing the various products of the soil of Mexico, which have hitherto been neglected for lack of knowledge and skillful treatment.

The rules for soliciting patents are as follow:

A patent of introduction is obtained by petition to the Government and act of Congress. The duration of the patent is limited by the concession granted by Congress. The usual period is ten years, and that of the improvement to a patent is six years. The Government will not inquire into the usefulness of any invention. Extensions are only given by Congress.

The documents, which must be in Spanish, are: 1. Petition (*solicitud*); and 2. Description or explanation of the subject of the patent, together with designs or models in *duplicate*. The fees will be from ten to three hundred dollars. Upon issuing a patent, the Government will return the extra copy of the descriptions, designs, or models which accompany the petition. A copy of the law will be sent with every patent when issued.

N. B.—Inventors can procure the names of responsible parties to introduce their inventions by writing to any of the consuls mentioned at the head of this chapter.

BUSINESS OPPORTUNITIES.

Capital may be advantageously invested in Mexico as follows:

1. In cattle and sheep ranches.
2. In water companies for irrigation.
3. In the manufacture of paper. (There are but three or four kinds of paper made in Mexico. Nearly all the white paper is imported.)
4. In woolen and cotton mills.

5. In the manufacture of hardware and machinery. (The duty on hardware is enormous.)

6. In the improvement of harbors and the construction of wharves. (Many of the harbors might, at a small expense, be rendered navigable for large vessels.)

7. In the organization of district-telegraph, telephone, and electric-light companies. (The former are unknown. There are a few of the others.)

8. In erecting hotels with all the modern conveniences. (First-class hotels are *very* rare.)

9. In the culture of sugar, coffee, tobacco, cotton, and fruit.

10. In opening the numerous wells of petroleum, and in refining the article. (Two refineries have just been erected in the State of Vera Cruz. Petroleum is destined to be a great source of wealth to Mexico. In 1882, 1,300,000 gallons were exported from New York to Vera Cruz. The country is capable of exporting this commodity to Europe, besides producing enough for home consumption.)

We have omitted to name the mining of the various ores, as foreigners have invested largely in the Mexican mines.

STANDARD BOOKS ON MEXICO.

Clavigero, *Storia Antica del Messico.*
Bernal Diaz, *Historia de la Conquista.*
Sahagun, *Historia Universal de Nueva España.*
Veytia, *Historia Antigua de Méjico.*
Herrera, *History of America.*
Solis, *Conquest of Mexico.*
Kingsborough, *Mexican Antiquities.*
Humboldt, *Political Essay on New Spain.*
Humboldt, *Atlas de la Nouvelle Espagne.*
Dupaix, *Antiquités Mexicaines.*
Stephens, *Incidents of Travel in Central America, Chiapas, and Yucatan.*

Ward, *Mexico in 1827.*
Calderon de la Barca, *Life in Mexico.*
Prescott, *Conquest of Mexico.*
Chevalier, *Mexico, Ancient and Modern.*
Wilson, *Mexico and its Religion.*
Wilson, *History of the Conquest of Mexico.*
Tempsky, *Mitla, Adventures in Mexico, etc.*
Buxton, *Adventures in Mexico.*
Bullock, *Six Months in Mexico.*
Brantz-Mayer, *Mexico, as it was and as it is.*
Haven, *Our Next-Door Neighbor.*
Lucas-Alaman, *Historia de Méjico.*
Zamacois, *Historia de Méjico.*
The New American Cyclopædia, *article on Mexico.*

LIV.

What Mexico needs.

THAT Mexico may assume an elevated rank in the family of nations, two conditions are necessary: *first*, the education and elevation of the mass of her population; *second*, the development of her unequaled natural resources.

According to an eminent American statesman and diplomatist,* "of the ten millions of people in Mexico, fully three quarters are Indians, two thirds of whom can not read, nor ever had an ancestor that could, who never slept in a bed or wore a stocking, and who are accustomed to live at a less expense per day than a farm-horse would cost in any New England State."

Comprising a territorial area sixteen times greater in extent than that of the State of New York, every variety of climate, and, consequently, every vegetable product

* The Hon. John Bigelow.

which is found between the equator and the Arctic Circle, may be said to exist within her borders. Nor is this all. Besides having yielded one half of the existing stock of silver in the world, her mines are still believed to be the richest on the face of the globe. Her deposits of iron are unsurpassed in quantity and quality. To these are to be added every other metal which science has enumerated.

How, then, shall the matchless vegetable and mineral resources of the Republic be developed? That Northern enterprise, industry, and capital will become important factors in the solution of the problem there is little room to doubt. The introduction of the most approved agricultural implements and processes, as well as of the most approved methods of treating the ores, will, of course, increase many fold the productions in both departments of labor. Yet, under existing circumstances, such a result would be neither useful nor profitable. Indeed, without the opening of new fields of industry, and of new avenues for placing the surplus products in the markets of the world, an increase of production might even prove disastrous. In his recent elaborate publication entitled *Railways in Mexico*, Señor Romero, the Mexican Minister at Washington, pertinently remarks: "A year of good crops in Mexico is a real calamity in many of the agricultural districts, as the production in that year far exceeds the consumption of the immediate neighborhood; and grain can not be sent to any distance on account of the high cost of transportation."

Happily, the first and most essential step has already been taken to provide adequate means of transportation for all the surplus products of the country. The great lines of railway which are now rapidly approaching completion, together with those which have been begun under the auspices of General Grant, Mr. Gould, and other experienced railroad managers, connecting, as they do, with the roads of this country, will become an integral part of a

system which is infinitely the grandest and most extensive in the world. Supplemented as these great avenues of trade and travel will be by innumerable turnpikes, which will form so many lateral tributaries, and for the construction of which the face of the country affords exceptional facilities, their influence will be felt throughout the length and breadth of the land.

But what Mexico needs, far more than the expansion of her physical resources, is the elevation of the toiling millions of her people. This result can only be achieved by their *education,* not alone in the lessons of the schools, but in the various branches of skilled industry and in social progress and enlightenment.

Thus far almost the only step which has been taken toward the intellectual culture of the young has been to provide schools for the training of the children of Spanish blood. Surely it requires no argument, in our day, to prove that the facilities for acquiring at least the elementary branches of education ought to be placed within the reach of every child, without reference to color, creed, or lineage.

This accomplished, the proper steps ought to be, and doubtless will be, taken to vest the ownership of the soil in its cultivators. The present land-tenure is what might reasonably be expected from the history of the country. Three centuries and a half ago the Spanish adventurers wrested it by force from the natives, and they and their descendants, almost without exception, have held it by the strong arm of power ever since.

Of all the lessons of history, none is more emphatic than that the ownership of the soil by its cultivators is essential to a successful and profitable agriculture. The history of France before the outbreak of the Revolution in the year 1789, the history of the British Islands, that of Ireland in particular, and our own experience as a nation

during the existence of negro slavery, are all full of instruction upon this point.

It may, indeed, be doubted whether any other measure of public policy so imperatively demands a wise and liberal adjustment as the settlement of the land-tenure. If others than the Mexicans are to inhabit the country in the future, it requires no soothsayer to predict that this course will be found to be indispensable.

One of the first fruits of the diversified industry springing from the new departure will be better wages, better food, better clothing, and better houses for the toiling millions. Following these will come the intelligent participation of every adult male citizen in the administration of public affairs. That best of all guarantees for the preservation of civil liberty and social order—the co-operation of all classes of citizens for the protection of the rights of person and property—will come next in course. Revolutions and brigandage, which have so long been the curse and opprobrium of Mexico, will no longer be possible. A permanent government "of the people, by the people, and for the people," will do away these and all kindred abuses. Thus will a new impetus be given to the cause of free government throughout the world.

PART SECOND.

CITIES AND ROUTES OF TRAVEL.

SECTION I.

Mexico.

HOW TO REACH THE COUNTRY.

WE give below the various routes from New York to Mexico, by steamship and railroad, and partly by steamer and partly by rail:

ROUTE I.—From New York *via* Havana, Progreso, Campeche, and Frontera, to Vera Cruz, by steamer, in about ten days.

ROUTE II.—From New York to New Orleans by rail in about sixty hours, thence steamer to Vera Cruz in about five days, calling at Bagdad, Tampico, and Tuxpan.

ROUTE III.—From New York to Laredo, Texas (on the Rio Grande), by rail in four days; or to El Paso, Texas, *via* St. Louis, in about the same time.

Route I.

NEW YORK TO VERA CRUZ BY STEAMER.

Fares, first class, $85; second class, $60.

Leaving New York, the steamer reaches *Havana* in about four days. A stop of an entire day is generally made at *Havana* before proceeding to the Mexican ports.

The tourist will not only have time to see the city, but can also visit the wonderful caves of *Matanzas* and the valley of *Yumuri*, distant two hours by rail. (For a full description of Cuba and the West Indies, see Appletons' *Hand-Book of Winter Resorts.*)

From *Havana* the steamer proceeds to *Progreso*, in Yucatan,* arriving there in about thirty-six hours, and stopping about twenty-four hours. The traveler can now disembark in a small boat, and set foot on Mexican soil. *Progreso* is the seaport of the city of *Merida*, twenty-two miles distant. There is no hotel accommodation in *Progreso*, but the American consul can assist the tourist in securing lodgings. The town is well laid out, and has straight and broad streets. Tourists will be interested in the scenes of the fruit and vegetable markets on the *plaza*. The houses are usually of one story, and are built of mortar, with thatched roofs.

Indians constitute the greater part of the population, which amounts to 1,900 inhabitants. Much hemp, rice, and maize are grown in Northern Yucatan. Upward of 90,000 bales of hemp are sent to the United States annually. Cacti and cocoa-palms are found in great abundance near *Progreso*. The tourist may have the opportunity of bathing in the warm surf before leaving town.

A railroad has recently † been completed to the city of *Merida* (fares, first class, $1; second class, 75 cents). This is the capital of the State of Yucatan, and has about 32,000 inhabitants. It is built on the site of the ancient *Maya*

* Prescott states in the *Conquest of Mexico*, vol. i, p. 222, that Yucatan is a corruption of the word "tectecan," meaning, in the *Maya* language, *I do not understand.* This term was the reply which the Spanish navigators received upon landing on the coast, when they asked the natives the name of the country. Supposing it to be a direct answer to their question, the Spaniards called the newly discovered region *Yucatan.*

† In 1881.

city of *Tihoo.* Few travelers visit *Merida,* and hence there is only one small hotel there (*Hotel Bazar*). Several lines of railway are being constructed from this city to points in the interior. The road toward *Peto,* on the south, is now (July, 1883) 20 miles long; that going to *Valladolid,* on the southeast, has been built for a distance of ten miles; and seven miles of the line toward *Calkini,* on the southwest, have been finished.

A concession has just been granted to some residents of *Merida* to construct a railway from the capital to *Sotuta, via Izamal.*

Many interesting ruins are found in the northern and central parts of Yucatan. Tourists intending to visit them should purchase horses and provisions at *Merida,* and obtain letters of introduction (*cartas de presentacion*) to the officials in the various towns. The most important ruined city is that of *Uxmal,* about 70 miles south of *Merida.* The cave of *Sahachao* is within a few miles of it. The remains of *Chichen-Itza* and *Izamal* lie about 50 miles southeast of the capital, and those of *Mayapan* are situated about 30 miles south of *Merida.* These places are comparatively easy of access. There are also interesting though less extensive ruins at *Labna, Zayi, Xcoch,* and *Ake,* in Central and Southern *Yucatan;* but these localities have been rarely visited thus far by American or European travelers. (See chapter on ruins for a general description of these ancient cities and towns.)

Humboldt states that Yucatan is an arid plateau, whose surface does not rise higher than 5,070 feet above the sea-level. The greater part of the State is covered with alluvial soil, and the climate is dry. Water is very scarce and valuable, there being only one river, the *Rio Hondo.* The rainy season lasts from April to October, during which time the reservoirs and tanks of the *haciendas* are filled for use in the remaining months of the year.

From *Progreso* the steamer takes a southwesterly course, and touches at *Campeche,* the capital of the State of the same name, and then proceeds to *Frontera,* in Tabasco. Cortes landed near the latter town on his voyage from Cuba to Mexico.

Large quantities of logwood are exported from *Frontera.* The tourist may leave the steamer at this point, and visit the famous ruins of PALENQUE, which are situated about 150 miles to the southeast. The journey, however, is a dif-



A Tropical Jungle.

ficult one, and a small boat must be hired to ascend the *Usumacinta* River. Guides, provisions, blankets, tents, medicines, etc., should be taken from *Frontera.* Travelers may also proceed to *San Juan Bautista,* the capital of the State of Tabasco (population, 6,800), and visit *Palenque* by road.

Steamers do *not* touch at the ports of *Campeche* and *Frontera* on every trip. (See time-table for exact dates of arrival.) The vessels anchor about five miles from the shore, and only stop long enough to transfer passengers, mail, and cargo to a small tender, and then continue on the direct route to *Vera Cruz,* reaching this port in about *ten days* out from New York, including stoppages.

Approaching *Vera Cruz,* the snow-clad peak of *Orizaba* may be distinctly seen at a distance of 50 miles on a clear day, and the *Cofre de Perote,* another snow-capped mountain, is also visible.

The Mexican coast is dangerous for navigators, on account of coral reefs. Just before reaching *Vera Cruz,* we pass an island on the south side of the town. It is the *Isla de los Sacrificios,* and is said to have been used by the Aztecs for sacrificing a youth on a certain day in every year.

The other island directly opposite the city of *Vera Cruz* is *San Juan de Uloa.* It was so named by Grijalva. This islet is covered with a fort, which was begun by the Spaniards in 1569, and finished in 1633. Hernando Cortes landed here on April 21, 1519. The fort is now used as a prison. Presently the steamer drops anchor. As soon as the health-officer has examined the vessel, and given the captain a clean bill of health, a large number of boats surround her, and the owners rush on board, offering their services to the passengers who are about to go ashore.

There is *no fixed price* for disembarking at *Vera Cruz,* and the traveler should make a bargain with a boatman before leaving the steamer, to pay him so much for taking his baggage ashore, and also to the *custom-house and hotel.* A boatman will take a single passenger for a Mexican dollar, *including* the conveyance of his baggage to the hotel; and, if a large party go in the same boat, an arrangement at a reduced price can be made *pro rata.*

It is impossible to land at *Vera Cruz* during a norther, which blows at intervals from October to March. Tourists may be compelled to remain several days on the steamship waiting for the waves to subside. Neither sailing-vessels nor steamers can enter this port while the norther lasts. *Vera Cruz* has really no harbor at all, although the two islands already mentioned afford some protection to the shipping during a storm. Vessels at anchor generally put to sea during a severe norther. It has often been said that Cortes should have founded the city of *Vera Cruz* at *Anton Lizardo,* a point about fifteen miles to the southward, which is the only good harbor on the Gulf of Mexico. The latter place is the terminus of a branch line of the Mexican Southern Railroad, and is evidently destined to surpass *Vera Cruz* in commercial importance at an early day. (*Compare Section VII.*)

A French company has recently entered into a contract with the Mexican Government to build an extensive breakwater in the harbor of *Vera Cruz,* which will cost about $10,000,000.

VERA CRUZ.

Population, 20,000.

HOTELS (*Diligencias, Vera Cruzano,* and *de Méjico.*)

CAFÉS on the *Calle de la Yndependencia.*

TELEGRAPH-OFFICE on the same street.

POST-OFFICE on the *Calle de Cinco de Mayo,* about a quarter of a mile southwest of the main *plaza.*

PLACES OF INTEREST.—1. *Plaza de la Constitucion.* 2. *Plaza del Mercado.* 3. The Parochial Church, the tower of which should be ascended for a view of the city. 4. The *Alamcda.*

None of the buildings of *Vera Cruz* are worthy of a visit. The climate is usually hot and very unhealthy, the *vómito,* or yellow fever, being prevalent in the summer season, and even breaking out occasionally in the winter months. Tourists are advised to spend as little time in

this city as possible. Passengers on the steamers may remain on board until within an hour of the departure of trains for the interior. During a norther, however, the temperature sinks to 65° Fahr., and then, of course, the stranger is not incommoded by heat. Travelers can have their foreign money changed at the office of the agents of the principal lines of steamships, *Messrs. R. C. Ritter & Co.*

The streets in the city of *Vera Cruz* are laid out at right angles, and are paved with cobble-stones, with a kennel in the middle.

Flocks of turkey-buzzards, called *zopilotes,* take the place of a street-cleaning department. These birds are protected by law, a fine of $5 being imposed for killing one of them.

The houses are of either one or two stories, and are generally built of stone and mortar, and covered with red tiles. Many of them have *patios,* or court-yards, and railings painted green in front of the windows facing the street, reminding the traveler of Old Spain.

A walk, or ride in the horse-cars, from the main *plaza* to the *Alameda,* should be taken by the stranger. The variety of colors and signs on the buildings, the picturesque costumes and musical language of the natives, and the tropical vegetation, will have the charm of novelty to the tourist coming from a northern clime.

Vera Cruz, formerly the capital of the State of the same name, is situated on the 19th parallel of north latitude. It was founded by the viceroy, Count Monterey, at the end of the sixteenth century, and was made a city by Philip III of Spain in 1615. The city is built on an arid plain. It was formerly called *Villa Rica,* or *Villa Rica de la Vera Cruz—i. e.,* the rich city of the true cross. The original town of *Vera Cruz* founded by Cortes lies several miles north of the present city.

Referring to this spot, the historian Prescott, in his

Conquest of Mexico, vol. i, p. 229, says: "Little did the Conqueror imagine that the desolate beach on which he first planted his foot, was one day to be covered by a flourishing city, the great mart of European and Oriental trade, the commercial capital of New Spain."

At the present day about two thirds of Mexican commerce passes through the port of *Vera Cruz*. The imports



Jalapa.

are increasing rapidly, those of 1882 being nearly fifty per cent greater than those of 1881.

An excursion may be made to *Jalapa*, sixty miles distant, by tramway. It is said that the railroad between this town and *Vera Cruz* will be completed on August 1, 1884.

JALAPA has a population of 12,400, and an elevation of 4,335 feet. (Hotels, *Nacional* and *Vera Cruzano*.) The

town is beautifully situated at the foot of the *Macuiltepete* Mountain. The well-known *Cofre de Perote,* 13,552 feet high, according to Humboldt, is within a day's journey. There are no buildings in *Jalapa* of special interest to the tourist except the old convent of *San Francisco.* Many of the merchants of *Vera Cruz* have their country-houses at *Jalapa.* The climate is cool, although damp, for the greater part of the year. The soil is very fertile, and coffee, tobacco, vanilla, cotton, maize, and jalap are cultivated extensively. The town derives its name from the latter plant.

Travelers may visit the ruins of *Papantla,* which lie about fifty miles north of *Jalapa.* Diligences run as far as *Tusintlan;* thence one must go on horseback. The *teocalli* lies about six miles from the town of *Papantla,* which contains a small hotel. Dr. Autrey, an American physician, can give the tourist information about the country. Horses, blankets, and provisions should be procured for this journey. (See chapter on ruins for description.)

There is another *teocalli* at *Tusapan,* 45 miles west of *Papantla.*

The village of *Misantla,* which is situated 30 miles northeast of *Jalapa,* contains a small pyramid.

An Aztec temple may also be found at *Mapilca,* on the *Rio Tecolutla.*

If the tourist has reached *Vera Cruz* by the northern route, he may make an excursion to the famous ruins of PALENQUE, by taking a steamer down the coast to *Minatitlan* on the *Goatzacoalcos* River, and thence proceed by road *via San Cristobal;* or he may go directly to the mouth of the *Rio Grijalva,* ascend the river to *San Juan Bautista,* and then travel by horseback to *Palenque via Macuspan.* This trip is somewhat difficult, but the traveler will be well repaid by visiting the ruins, which lie about eight

miles from the town of *Palenque.* (For description of the buildings, see chapter on ruins.) Tourists should procure letters of introduction to the Government officials in the country lying between the coast and *Palenque.* There are no hotel accommodations, and the traveler will be obliged to pass the nights in Mexican huts, where he may always expect courteous treatment.

Tourists are recommended to provide themselves with sufficient provisions, tents, camp-bedsteads, mosquito-netting, and medicines. Extreme caution should be taken to avoid the numerous insects as much as possible. The jungle abounds with *moniquiles,* jiggers, ticks, red ants, etc. The *moniquiles* burrow under the skin, causing great suffering. Should the stranger be attacked by these peculiar insects, he should employ the common remedy of pasting a leaf over the bite, which causes the insect to come to the surface, when it may be extracted. The natives will point out the peculiar kind of leaf to be used.

Route II.

FROM NEW YORK TO NEW ORLEANS BY RAIL, THENCE BY STEAMER TO VERA CRUZ.

Fare to New Orleans, $38. Fares from New Orleans to Vera Cruz—first class, $50; second class, $35.

(For description of New Orleans, see Appletons' *General Guide to the United States,* or *Hand-Book of Winter Resorts.*)

Leaving New Orleans, the steamer descends the Mississippi River for about one hundred and twenty-five miles, and, entering the Gulf of Mexico by the South Pass, takes its course toward *Bagdad,* the port of *Matamoros.* No land is seen till the vessel approaches within a few miles of the latter town. We drop anchor about five miles from the shore, and a tender comes out to take off passengers, cargo,

and the mails. *Matamoros,* in the State of Tamaulipas, is a port of entry, and lies on the south bank of the *Rio Grande,* opposite Brownsville in Texas, and about thirty miles from the mouth of the river. The population is about 12,000. A railroad is in progress toward the city of *Monterey.* Another is projected southward to *Tampico.* (See Section XII.)

Leaving *Bagdad,* we sail southward, keeping out of sight of land almost all the way to *Tampico.* On reaching the latter port the passengers, freight, and mail are transferred to a small sail-boat and carried over the bar at the mouth of the *Rio Tampico* to the town of the same name about nine miles distant. There is a small hotel at *Tampico,* and the population numbers 7,000.

Ten miles to the northward is the *Rio Pánuco,* famous in the history of New Spain as being the terminus of Grijalva's voyage from Cuba along the coast of the Gulf of Mexico, and also noted as the spot where the remnant of De Soto's band of explorers landed in their unfortunate voyage southward from the mouth of the Mississippi.

The *Rio Pánuco* is about one thousand feet wide, and is said to be navigable for a distance of twenty miles from its mouth. Small steamers connect *Tampico* with stage-coaches for *San Luis Potosí via Ciudad del Maíz.*

A branch of the Mexican Central Railway is being constructed from *Tampico* toward the city of *San Luis Potosí.* (For description, see Section V.)

From *Tampico* the steamship proceeds to *Tuxpan,* where passengers, freight, and mails are landed by means of a small sailing-vessel. The town lies nine miles above the mouth of the *Tuxpan* River, and has about 8,000 inhabitants. This river is navigable for about thirty miles, but there is only six feet of water on the bar at high tide. No hotel accommodations are to be had in *Tuxpan.*

Papantla may be reached in two days on horseback. (See p. 46.)

Valuable petroleum-wells are found in the vicinity, and two American companies have already erected works to refine the oil.* The petroleum occurs chiefly in the State of *Vera Cruz*, between the *Pánuco* and *Tuxpan* Rivers. The wells are mostly near the coast, at *Chapapote, Santa Teresa, Juan Felipe, Escondida, Sepultura, Carribajal, Monte Grande, Paso Grande,* and on the borders of the *Laguna de Tamiahua.* There are submerged stone ruins in this lagoon. A railroad from this port toward the City of Mexico is projected, but it will probably be several years before the work of construction is finished.

It should be borne in mind that passengers can disembark at *Bagdad, Tampico,* and *Tuxpan* in good weather only. During severe northers they are taken to *Vera Cruz.*

Route III.

FROM NEW YORK TO *LAREDO,* TEXAS, EITHER *VIA* ST. LOUIS, MISSOURI, OR NEW ORLEANS, LOUISIANA; OR TO EL PASO, TEXAS, EITHER *VIA* TEXAS AND PACIFIC RAILWAY, OR ATCHISON, TOPEKA AND SANTA FÉ RAILROAD.

Fares from New York to *Laredo,* $69.15 unlimited, and $58.80 limited; and from New York to *El Paso,* $74.60 unlimited, and $64.85 limited.

(For description of these routes from New York southward, see Appletons' *General Guide to the United States.*)

Sections IV and V of Part Second describe respectively the routes from *Laredo* and *El Paso* to the interior of Mexico.

* The Vera Cruz Oil Company was organized at Boston in 1881. Mr. Thomas Nickerson, Hon. B. F. Butler, and others, are shareholders. A well has been drilled to a depth of 372 feet, and filled with a five-inch casing. Experts say that this oil is very promising, and that there is only eight per cent waste. Land is cheap, the rate of taxation is low, and there is a duty of 32 cents a gallon on imported petroleum.

Tourists visiting Mexico from *San Francisco,* California, by rail, should take the Southern Pacific Railroad to *Benson,* Arizona, 1,024 miles distant, and proceed to *Guaymas,* or other points on the west coast; or go directly to *El Paso,* a distance of 1,286 miles, and thence travel into the interior.



A Mexican Cañon.

SECTION II.

The Mexican Railway Company (Ferrocarril Mexicano).

FROM VERA CRUZ TO MEXICO.

263¼ miles, or 424 kilometres. Fares, first class, $16; second class, $12.50; third class, $7.25.* Time, 14½ hours.

THIS route will be described as follows:

1. From *Vera Cruz* to *Orizaba.*
2. From *Orizaba* to *Esperanza.*
3. From *Esperanza* to *Puebla via Apizaco.*
4. From *Puebla* to the City of *Mexico.*

1. From VERA CRUZ to ORIZABA, 82 miles.

The tourist is advised not to proceed directly to the lofty table-land, but to remain a few days at some intermediate point, *e. g.*, at *Cordoba* or *Orizaba,* in order to become accustomed to the rarefied air. The latter city is preferable as regards hotel accommodations, and it presents besides some objects of interest to the sight-seer. There is only one through passenger-train daily, which at present (1884) starts at 6 A. M. Leaving the railway-station, which is six and one fifth feet above the Gulf of Mexico, the road traverses a broad plain, which is barren near the city of *Vera Cruz.* The tourist soon encounters a dense growth of cactus and *chaparral,* with a few palms interspersed.

A branch road leaves the main track about three miles from *Vera Cruz,* and runs to *Medellin,* six miles distant.

* The diligence fare from Vera Cruz to Mexico used to be $50.

In the *tierra caliente* (hot land) the hovels of the natives are of one story, and are generally thatched with palm-leaves.

Three lines of telegraph are seen by the side of the track. One of them belongs to the National Government, another to a private corporation called "The Commercial," and the third to the Mexican Railway Company. The last uses imported poles of cast-iron, with white china insulators.

Passing the station of *Tejeria* (9½ miles), whence a branch tramway leads to *Jalapa*, 60 miles distant, the surface of the ground continues flat, and affords good grazing all the way to *Soledad* (26 miles); elevation, 305 feet. Here the train stops ten minutes. Coffee and bread are for sale, at the price of one *real*. The majestic, snow-clad peak of *Orizaba* now rises into full view. For a hundred miles the eye follows the crest of the *sierra* forming the eastern boundary of the table-land.

The plain of the State of *Vera Cruz* is about thirty miles in width. After crossing the *Soledad* River, the ascending grade becomes perceptible. At many of the railway-stations cakes of compressed coal are piled in large masses. They are imported from Great Britain, as there is no coal near the line of the road, and wood being scarce and dear, except in the vicinity of the volcano of *Orizaba*.

The next station is *Camaron* (39¼ miles). The road now crosses a plateau covered with basaltic bowlders. The so-called Spanish moss, or lichen, hangs from the trees, reminding the American tourist of the forests of Georgia and Florida.

Paso del Macho (47¼ miles) is the next stopping-place. Here the train begins to ascend a heavy grade. The track makes a wide curve around the base of the thickly-wooded *Chiquihuite* Mountain, and soon comes in sight of the cascade of the *Rio de Atoyac*. The adjacent region is covered with a dense tropical jungle, in which many species

of flowers and trailing vines grow luxuriantly. The matted forest extends to the summits of the neighboring hills. Perhaps no other part of Mexico possesses a richer vegetation than this portion of the route. It forms a striking contrast to the dreary plains which the traveler will soon reach.

The train now arrives at *Atoyac* (53½ miles) ; elevation, 1,512 feet. The line crosses a bridge over the *Rio de Atoyac*. This, like the other bridges along the route, is built of iron, with stone piers. Proceeding farther, several tunnels are passed, and both tobacco and sugar-cane are seen growing in the vicinity.

The next station is *Cordoba* (65¾ miles), which lies at the altitude of 2,713 feet above the level of the Gulf. This town has about five thousand inhabitants, and is one mile distant from the railway. It is reached by horse-cars, and it has a small hotel. *Cordoba* is famous for its coffee-plantations, and the stranger will have no better opportunity in Mexico for visiting one of them. A day may be spent to advantage at *Cordoba*. Various kinds of fruit grow plentifully, and are sold at a very low price. A basket of two dozen oranges costs twenty-five cents, whereas the usual price on the table-land is three oranges for a *medio* (six and a quarter cents). Mexicans *en route* to the capital often lay in a large stock of pine-apples, bananas, and oranges at *Cordoba*, and take them to their homes, as the extortionate rates of freight on this railway render fruit very expensive in the City of Mexico.



The Pineapple Plant.

Most of the coffee consumed in Eastern Mexico grows in the vicinity of *Cordoba.* There are many valuable plantations, and a few Americans have established themselves here. It may be remarked that the State of *Vera Cruz* produces more coffee than any other State in the Republic.

Leaving *Cordoba,* the road makes a long bend and crosses the bridge of *Metlac,* built over a river of the same name. The scenery is magnificent, and the ravine, or *barranca,* of *Metlac* contains one of the most skillful pieces of engineering to be found in the country. The general plan of building the Mexican railways has been to wind around the bases of the several mountains, rather than to drive long tunnels or construct large bridges. Passing the hamlet of *Fortin* (70¾ miles), the next station is *Orizaba* (82 miles).

ORIZABA.

Population, 17,000; elevation, 4,028 feet.
HOTELS.—*A la Borda* (German), *Diligencias,* and *Cuatro Naciones.*
BATHS.—*De Santa Rita* on the main street; very good.
HORSE-CARS from the station to the hotels; fare, a *medio* (6¼ cents).
HACKS, 6 *reales* (75 cents) an hour.

Orizaba is the present capital * of the State of *Vera Cruz.* It lies in a broad and very fertile valley. There is excellent pasturage in the vicinity, and fine cattle are raised. The staple products of the valley are tobacco and sugar-cane. There are several *haciendas* of the latter, the largest of which is at *Jalapilla.* Tobacco grows in the outskirts of the city in large quantities. Even church-yards have been turned to use for planting this article. During the Spanish domination, when the restrictions on trade were so oppressive, the cultivation of tobacco was confined by law to the district including *Cordoba* and *Orizaba,* and the Government employed inspectors to pull up any leaves of the plant that were found growing outside of it.

* Jalapa was formerly the capital.

PLACES OF INTEREST.—1. The *Parroquia* and other churches. 2. The *Paseo*. 3. The *Cerro* (hill) *del Borrego*. 4. *Jalapilla* (sugar-mill). 5. The cascade of *Rincon Grande*. 6. The cascade of *Barrio Nuevo*.

The *Paseo* is one of the most beautiful parks in Mexico. It is about a half-mile from the principal hotels.

The *Cerro del Borrego* should be ascended. Its summit commands a magnificent view. During the invasion, the French defeated the Mexicans here on June 13, 1862, and the remains of the fortifications are seen to this day. There is a limestone-quarry at the base of the mountain.

Jalapilla is a hamlet about a mile and a half south of the city. It lies in the midst of rich fields of sugar-cane. There is a large sugar-mill here, belonging to *Señor Bringos*, and the tourist will have an excellent opportunity of seeing how sugar is manufactured. We may add that a much larger quantity of sugar could be produced in the valley of *Orizaba* than is now yielded, because only a small part of it is occupied by the sugar-cane. This remark would also apply to the greater part of the arable land in the State of *Vera Cruz* in regard to crops of other articles.

This State ranks second in the annual production of sugar, *Morelos* being the first. The Emperor Maximilian resided a short time at *Jalapilla* after the French army had evacuated the capital. Here he held the famous council to determine whether he should abdicate or not.

The cascade of *Rincon Grande* is about a mile east of *Jalapilla*. There are several waterfalls about forty feet in height, which are surrounded by very luxuriant vegetation. There is another cascade (*Barrio Nuevo*) of smaller dimensions on the north side of the valley of *Orizaba*.

Owing to the scarcity of rain in Mexico, waterfalls are very highly regarded. They are found chiefly in the *tierra templada* and in the "foot-hills" of the *Sierra Madre*. The

majestic peak of *Orizaba* is visible only from the eastern end of the city. An intervening ridge prevents the observer from seeing it in other quarters of the town. If the tourist will leave his hotel early enough to see the sun rise on the mountain, he will behold one of the grandest sights in Mexico.

Most of the houses in *Orizaba* are one story high, with overhanging red-tiled roofs. The traveler will have a chance to examine the class of dwellings occupied by the poor people. They are constructed of all kinds of rubbish, such as old boards, sugar-cane stalks, barrel-staves, sun-dried bricks, and pieces of matting. These huts are generally thatched with palm-leaves or with dried strips of the *magucy*, and the solid ground serves as a floor. The climate of *Orizaba* is temperate but very moist. Bull-fights take place on Sunday afternoons, the bull-ring, or *plaza de toros*, being in an old convent. Another large church is now used as a barracks for the garrison. There is a Masonic lodge in the upper part of the same edifice.

The stranger, by visiting the registrar's office (*oficio público mas antiguo*), can inspect some of the old Spanish deeds written on parchment, with many abbreviations, during the time of Cortes. The mediæval Spanish contains so many contractions as to be almost incomprehensible to the Mexican of to-day. For example, instead of writing q-u-e for the word *que*, meaning "which," in those days they wrote simply the letter *q*, with the addition of a semicircular curve, which was carried over to the first letter of the next word, giving the two words the appearance of a single one. Notwithstanding the age of these manuscripts, they are still in an excellent state of preservation.

2. From Orizaba to Esperanza (29 miles).

Leaving *Orizaba*, the railroad traverses the flat plain, and passes the village of *Horales*, which boasts of a small

cotton-factory. The next station is *Enurial* (88½ miles). A Fairlie engine, which is constructed of two locomotives, with the tender on top, is now attached to the train. The grade soon becomes very heavy as the iron horse climbs the *cumbres*, or summits. Passing through several tunnels, the *Barranca del Infiernillo* is reached. This locality affords the most magnificent scenery along the entire route. The track is built on the edge of a precipice, and a roaring torrent is seen at the bottom of the rocky cañon, six hundred feet below. The tourist may now look back on the broad valley, and trace the course of the winding railway, interspersed with bridges, and see the old diligence road in the distance, which is to-day given up to pack-animals. Trains of *burros*, or donkeys, still transport the wares of the peasant to the neighboring villages.

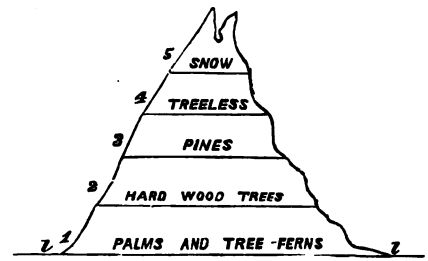
The next station is *Maltrata* (94½ miles), where the elevation is 5,550 feet. The volcano of *Orizaba* is visible from this point. It is, however, generally covered with clouds, except in the early morning. There are so many curves, and the ascending grade is so steep, that the train only makes about seven miles an hour in this part of the journey. Some maize is grown beyond *Maltrata*, but the country is barren for the most part.

Bota (97½ miles) is the next station. The line now makes another great bend around the steep slope of the mountain, and comes to *Alta Luz* (103 miles), a hamlet of several houses. If the observer will look back, he may see the village of *Maltrata*, with the track meandering across the plain, and, far in the distance, a glimpse of the valley of *Orizaba* may be obtained.

The traveler has reached the *tierra fria*, or cold zone. The flora reminds one of the Rocky Mountains. Dwarf pines, spruces, and deciduous trees, with a few Alpine flowers, take the place of the luxuriant tropical vegetation of the "hot country" that has recently been traversed.

Blue limestone covers the country from *Orizaba* westward, and the region is adapted to grazing to some extent. The next station is *Boca del Monte*, or "mouth of the mountain" (107½ miles), where the elevation is 7,924 feet.

The tourist has now attained the level of the great table-land of Mexico. This point, however, is not the highest on the line, the summit being near *Guadalupe*, about eighty miles distant. The traveler crosses a flat plain for several miles, and arrives at *Esperanza* (111¼ miles).



This cut shows the zones of vegetation in going from the sea-level to the summit of the snow-clad peaks.

The train stops thirty minutes for dinner. The eastward and westward passenger-trains meet here. The respective escorts of soldiers change cars, and are carried back to the termini of the road. A high wall surrounds the station, and a guard stands at each entrance. A small but well-kept hotel lies within the inclosure. It belongs to the railway company, and a French *restaurateur* is employed as manager. The nights and early mornings are very cool on the table-land, the thermometer usually falling to 40° Fahr., and occasionally below the freezing-point. The plain of *Esperanza*, which has an area of about forty-five square miles, is quite fertile. Wheat, barley, and Indian corn are grown in abundance. If the tourist will stop over for a day, he may visit a fine *hacienda*, or farm, at *San Antonio de Abajo*, about two miles distant. It belongs to *Don Andres Gutierrez*, and is valued at $200,000. The *hacienda* contains houses for the *peons*, or

day-laborers, barns, stock-yards, blacksmith and carpenter shops, etc. There is also a quaint little church, which bears the date of A. D. 1772 on the belfry. The *hacendado*, or proprietor, employs a priest to officiate, and also to teach the children of his *peons*, who number several hundred. There are a great many horses, mules, cattle, and sheep on the farm, and the owner uses plows of American manufacture.

The traveler has an excellent view from *Esperanza* of the volcano of *Orizaba*, which rises behind the *Sierra Negra*. The mountain can be ascended from this point. It is difficult, however, to procure horses here, and accordingly the tourist is recommended to make the ascent from *San Andres*, about six miles distant by trail, but fifteen miles by the railway.

The peak of *Orizaba* is 17,200 feet above the sea-level, and is the highest mountain in Mexico, with the exception of *Popocatepetl*. There were violent eruptions in 1545 and 1566, but the volcano has been quiet ever since. It was reported to be smoking in April, 1883. There is no difficult climbing on the mountain, but the ascent is exceedingly laborious on account of the steepness of the snow-clad cone. It is almost impossible for the traveler coming direct from *Vera Cruz* to ascend *Orizaba*. He should spend several days on the table-land, and accustom his lungs to the rarefied atmosphere, before starting out for the summit of the peak. The tourist can ride to a cave just below the timber-line, which is about 13,500 feet above the level of the sea, and pass the night there. Guides, blankets, and provisions for two days must be taken. As the clouds rise and often cover the mountain early in the forenoon, the traveler should leave the cave by 4 A. M. if possible. About five hours will be required to reach the summit. Very few persons thus far have climbed *Orizaba*.

An excursion to *Oaxaca* and *Mitla* may be made from

Esperanza. A horse-railroad extends from the latter place to *Tehuacan,* thirty-one miles distant. A diligence is then run to *Tecomabapa,* about forty miles farther. Thence the tourist must travel by horseback *via* the villages of *Teotitlan, Cues, Dominguillo, Joyacatlan, San Juan,* and *Etla,* to *Oaxaca,* about ninety miles distant. *Tehuacan* (Hotels, *Diligencias* and *Ferrocarril*) has a population of 10,000. The traveler is advised to procure horses in this place. There is a *meson* (inn) at *Tecomabapa,* but the other settlements being very small are destitute of hotel accommodations. The nights must be spent in the huts of the natives. Parties making this trip are advised to carry provisions with them. The Mexican Southern Railroad will eventually connect *Tehuacan* with *Oaxaca.* The latter city is described in Section VII, and the reader is referred to the chapter on ruins in Part First for an account of *Mitla.*

3. From ESPERANZA to PUEBLA *via* APIZACO, 94¾ miles.

Leaving *Esperanza,* the traveler sees the snow-capped summits of *Popocatepetl* and *Iztaccihuatl* on the left, and the pyramidal peak of *Malinche* on the extreme right. The landscape reminds him of the parks of Colorado. The railroad crosses the broad plain, and the station of *San Andres* (126¼ miles) is reached. Horse-cars run to the town, about five miles distant. It has already been stated that the volcano of *Orizaba* may be ascended from this point (p. 168). The summit is about fifteen miles distant.

The train now passes some maize-fields and the salt lakes of *El Salado,* and arrives at *Rinconada* (139 miles), elevation 7,731 feet. The country soon becomes fertile again, and the next station is *San Marcos* (150¼ miles). Another railway crosses the track here, extending to *Puebla* on the south, and to *San Juan de Llanos* on the north. It will be completed in the autumn of 1884. Proceeding farther,

the train stops at *Huamantla* (161 miles). The traveler is now in the State of *Tlaxcala*, the former home of the great rivals to the Aztecs, whose services Cortes secured on the march from *Vera Cruz* to the valley of Mexico, thereby greatly increasing his forces. Much Indian corn is cultivated in the neighborhood, and the *maguey*, or aloe, and *nopal*, or cactus-tree, are used as fences. The picturesque mountain of *Malinche* lies behind the town. It was named after *Doña Marina*, the interpreter of the Spanish army under Cortes.



The Nopal.

The next station is *Apizaco* (176¾ miles), elevation 7,912 feet. A branch line leads from this point to *Puebla*, 47 kilometres, or 29¼ miles. It was opened on September 16, 1869.

Leaving *Apizaco*, the road makes a long curve and runs southward to *Santa Ana* (10½ miles). The mountain of *Malinche* remains in full view. It is often snow-capped, and the natives bring the snow to the train and sell it in glasses mixed with lemon-juice. *Maguey*, maize, and wheat grow in large quantities along the line. The grade is downward all the way to *Puebla*.

The tourist soon comes in sight of the majestic snow-clad peaks of *Popocatepetl* and *Iztaccihuatl*. The former has an elevation of 10,500 feet above the broad valley. The next station is *Panzacola* (21¾ miles), and a half-hour's ride brings the tourist to *Puebla*.

PUEBLA.

Population, 64,588; elevation, 7,201 feet.

HOTELS.—*Español, Diligencias, Del Cristo, Del Recreo.*

RESTAURANTS and CAFÉS on the northern and western sides of the *Plaza mayor.*

BATHS, adjoining the *Paseo viejo* (1 *real*).

CARRIAGES, 50 cents an hour; on Sunday and feast-days, 75 cents.

Puebla was founded on September 28, 1531. The city is *par excellence* an old Spanish settlement. It is often called *Puebla de los Angeles,* or town of the angels. Since May 5, 1862, the city has been named *Puebla de Zaragoza,* after a general of that name, who defeated the French on the date above mentioned. The churches are finer than those of any other Mexican town, and the streets are well paved. The houses are usually built with two stories, and arcades are found on the *Plaza mayor.* There are twenty-six public squares and two parks in *Puebla.*

The adjoining city of *Cholula* was the headquarters of Cortes for several months during the Conquest. Pictures of some of the battles between the Spaniards and the natives may be seen on the walls of the hotels. Blankets, or *zarapes,* hats of straw and felt, soap, thread, crockery, and glass are manufactured in large quantities in *Puebla.* Many fine stores are found in the city, and the traveler can purchase ornaments of the so-called Mexican onyx, or *tecali,* which occurs in the neighboring marble-quarries. It is composed chiefly of carbonate of lime.

The stranger should ascend one of the towers of the cathedral for a view of the city. The scene is one of surpassing beauty. *Malinche* lies on the eastern side of the fertile plain, and the volcano of *Popocatepetl* rises about twenty-five miles to the westward. Tourists can ascend the latter mountain from *Puebla.* Guides, blankets, and provisions for three days, must be taken; but it will be more convenient to make the ascent from *Amecameca,* on the

western side of the ridge. (This trip is described in the section on the Morelos Railway.)

PLACES OF INTEREST.—1. The Cathedral (observe the wood-carvings and Mexican onyx-work). 2. The Church of *San Francisco*. 3. The Church of *La Compañia*. 4. The Church of *San Cristobal*. 5. The Museum. 6. The College, or *Colegio del Estado*. 7. The *Paseo Nuevo* and *Paseo Viejo*. 8. The Pyramid of *Cholula*. 9. Fort *Guadalupe*.



Popocatepetl.

There are several other churches, but they are hardly worth a visit. We have not space to describe all of the above buildings. The reader is referred to the chapter on ruins for an account of the pyramid at *Cholula*. At the time of the arrival of the Spaniards, Cortes states that the city of *Cholula* contained 20,000 houses and about 150,000 inhabitants. To-day the population is less than 10,000.

A church built by Cortes, and containing some quaint historical paintings, is yet standing. *Cholula* can also boast of a park. The town has an altitude of 6,906 feet according to Humboldt, or about 300 feet lower than *Puebla.* It is reached by carriage and by horse-cars (fare, first class, twenty-five cents). The distance is seven miles. *Magucy* and wheat are grown to a large extent in the vicinity.

4. From PUEBLA to the CITY OF MEXICO. Distance, 115¾ miles. Two trains daily.

Leaving *Puebla,* the road has an ascending grade to *Apizaco.* The heaviest is near the latter place. From *Apizaco* the land rises slightly, and the track crosses a gently undulating plain covered with extensive *maguey* plantations.

Guadalupe (186¼ miles) is the next station. The highest point of the Mexican Railway is near by. It is 8,333 feet above the Gulf of Mexico. This is the most elevated station in the Republic, except where the Mexican National Railway traverses the *sierra* between *Toluca* and the capital. The summit of the latter route is 9,974 feet. At various points of the road the tourist will see soldiers, wearing gray uniforms, and armed with carbines and sabers. They are the *Guardia rural,* or mounted patrols, who accompany the diligences, and protect the smaller towns from the depredations of robbers.

Passing *Soltepec* (192¾ miles); and *Apam* (205¾ miles), which has an elevation of 8,226 feet, the train reaches *Irolo* (215½ miles). A tramway leads from the last station to *Pachuca,* thirty-seven miles distant. *Pachuca* is one of the oldest mining towns in Mexico, and many of its mines are worked at the present day; but, as the daily passenger-train from *Vera Cruz* and *Apizaco* does not connect with the tramway, the tourist is advised to proceed directly to the capital, and make an excursion to *Pachuca,* taking the outward morning train. (For description, see Section III.)

Leaving *Irolo*, where the elevation is 8,046 feet, the road-bed descends gradually toward the City of Mexico. The next station is *Ometusco* (221¼ miles), following which comes *La Palma* (225¼ miles).

Tourists will observe that the houses in the villages on the table-land are built of large, sun-dried bricks, called *adobe*. The country is sparsely populated, and the natives live together in towns or hamlets. It is very rare to see a dwelling isolated from any settlement.

Passing *Otumba* (229 miles), famous in history as the scene of a battle in which the Spanish invaders defeated the Aztecs, on July 8, 1520, we reach *San Juan Teotihuacan* (236 miles). The latter place is celebrated for its two pyramids, that of the Sun and that of the Moon. They may be seen from the train, but a visit to these *teocallis* will repay the traveler. As the town lies about one and a half mile from the railroad, and as there is neither hotel nor restaurant in it, the tourist must continue the journey to the national capital, and make an excursion to *San Juan Teotihuacan* by the morning train, returning in the evening. (The pyramids are described in the chapter on ruins.) The next station is *Tepexpam* (243 miles), and the track soon enters the far-famed valley of Mexico. The road skirts the Lake of Texcoco, and presently the magnificent snow-capped mountains are seen on the south. Passing the town of *Guadalupe*, the traveler arrives at the railway-station of *Buena Vista*, one of the suburbs of the City of Mexico.

An express-agent meets the train, and will deliver baggage to any part of the city. He will also take charge of the keys, as trunks and boxes must be opened and examined for the purpose of ascertaining whether they contain taxable articles before being allowed to enter the city. The office of the express is in the Hotel *Iturbide*, and the charge is twenty-five cents (two *reales*) for each package.

SECTION III.

The City of Mexico and Environs.

POPULATION of the capital in 1883, according to the best estimates, 225,000. Elevation, 7,347 feet, or 2,240 metres, above the sea-level.

HOTELS.—*San Cárlos*, *Iturbide*, *Gillow*, *Comonfort*, *Guadiola*, *Nacional*, *Europa*, *Del Bazar*, *Universal*, *Espíritu Santo*, *Gran Hotel Central*, *Ortega*, *San Agustin*, and several others.

MESONES (inns).—*De San Francisco*, *De la Estrella*, *De San Antonio*, *Del Picadero*, and many others.

RESTAURANTS.—*Iturbide*, *De la Concordia*, *Café Anglais*, *Maison Dorée*, *Café de Paris*. (Fee in restaurants, one *medio* (6¼ cents) for each person.)

POST-OFFICE.—In the *Calle de la Moneda*.

TELEGRAPH-OFFICES in the railway-stations. Central office of the Government telegraph line in the *Callejon del Espíritu Santo* No. 5. Office hours, 8 A. M. to 8 P. M.; on feast-days from 9 A. M. to 12 M. Office of the *Vera Cruz* Commercial line, at No. 14 *Del Refugio*. Office of the old line to *Jalisco*, in *Los Bajos de San Agustin* No. 2.

EXPRESS-OFFICE in the Hotel *Iturbide*. Wells, Fargo & Co. have also an agency in the city.

THEATRES.—*Nacional*, in the *Calle de Vergara*; *Principal*, *Calle del Coliseo*; *Arbeu*, in the *Calle de San Felipe Neri*.

BATHS adjoining the *Teatro Nacional* (the others can not be recommended).

GENERAL DILIGENCE-OFFICE, in the rear of the Hotel *Iturbide*.

CARRIAGES, first, second, and third class.—First class, carrying *blue* flags, $1 an hour on *work-days*, and $1.50 on *feast-days*. Second class, with *red* flags, 75 cents and $1 on work-days and feast-days respectively. Third class, with *white* flags, from 6 A. M. to 10 P. M., 50 cents, and from 10 P. M. to 6 A. M., $1 an hour on all days. Public carriages have their number and a tariff of charges printed in Spanish posted in a conspicuous manner inside. The driver is obliged to hand the passenger entering his carriage a paper containing the tariff, his name and number, and the place where he belongs. In hiring a vehicle, one quarter of an hour is the minimum that can be paid for.

SADDLE-HORSES, $2 for the afternoon.

BANKS.—*London, Mexico, and South America, Capuchinas* No. 3; *Nacional*, corner (*esquina*) of *San Francisco* and *San Juan de Letran* Streets; *Mercantil Mexicano, San Agustin* No. 15; *Bolsa Mercantil Mexicana, Puente del Espíritu Santo* No. 6.

SOCIETIES.—Mexican Geographical and Statistical Society, *Calle de San Andrés* No. 11; Mexican Academy, *Calle de Medina* No. 6; American club-house at the suburb of *La Piedad;* German club, corner (*esquina*) *del Colegio de Niñas* and *Independencia* Streets; French Philharmonic and Dramatic Society, *2da de Plateros;* French Circle (reading-room), *Antigua Lonja, Bajos de la Disputacion;* Hunting and Fishing Club, *Sta. Isabel* No. 9.

RAILWAY STATIONS at *Buena Vista*, for the Mexican Railway Company, and the Mexican Central Railroad Company; at *Colonia*, for the Mexican National Railway Company; at *San Lázaro* for the Morelos Railway Company.

HORSE-CARS, of first and second class, start from the *Plaza mayor* at intervals of ten, fifteen, thirty, and sixty minutes, for all parts of the city and suburbs not exceeding ten miles distant. (See time-tables.)

DIPLOMATIC CORPS.—The United States, France, Spain, Guatemala, Salvador, Honduras, and Chili are represented by envoys extraordinary and ministers plenipotentiary at the capital. Germany, Italy, and Belgium have ministers resident. Formerly Great Britain had diplomatic relations with Mexico, but they were suspended on account of the failure to pay a public debt. At present (March 1884), Señor Mariscal, the ex-Secretary of Foreign Affairs, is negotiating for the renewal of diplomatic intercourse with England. The foreign ministers live in the suburb of *San Cosme.*

NEWSPAPERS.—Single copies, one *medio* (6¼ cents). The *Two Republics*, published semi-weekly, is the only journal in English. The *Financier* is printed half in Spanish and half in English. Besides these, several papers are published in Spanish and French, such as the *Monitor Republicano, Diario Oficial*, and others.

BULL-FIGHTS, at the suburbs of *Huisachal* and *Cuautitlan*, on Sunday afternoons.

THE City of Mexico is the capital of the Republic. The name is derived from *Mexitli*, who was the Aztec war-god. Under the name of *Tenochtitlan* it was the capital of the ancient empire of *Anahuac.* The story of its origin is as follows: The Aztecs, while wandering about the country, met the Colhuans, a rival tribe. A battle ensued, and the former, being defeated, were pursued by the latter. The Aztecs marched to the valley of Mexico, which

was then mostly covered by lagoons. An oracle had commanded them not to found a city till they had come to a spot where an eagle would be seen standing on a rock. Upon exploring the shores of the lagoon, the Aztec rovers beheld the long-sought eagle resting on a cactus, which



The Volcanoes of Popocatepetl and Iztaccihuatl.

grew out of a crevice in the solid rock. Accordingly, they called their city *Tenochtitlan*, which signifies a "cactus upon a rock."

The device of an eagle, with a serpent in its beak, standing on a cactus that grows out of a rock, has become the escutcheon of Mexico. It is found on the national flag, as well as on the gold and silver coins.

The present capital lies in latitude 19° 25′ 45″ north, and longitude 99° 5′ 15″ west of Greenwich. It is built on

what was formerly an island in the Lake of *Tezcuco.** The ancient city is said to have been founded on July 18, 1325. Some of the houses were constructed on piles, like the prehistoric Swiss lake-dwellings. In order to protect the capital from the inundations of the surrounding lakes, a system of dikes was established by the Aztecs, the remnants of which exist to the present day. In 1466 Montezuma I, after a disastrous flood in *Tenochtitlan*, ordered a dike to be constructed, which was 39,360† feet long and 65 feet wide.

At the time of the Conquest the ancient capital was entered by the Spaniards under Cortes on the 8th day of November, 1519. After a residence of about seven months, he was compelled to evacuate it. In the following year, with the aid of brigantines on Lake *Texcoco*, which were built especially for the purpose, in the neighboring hills, the Conqueror attacked and besieged the city. The siege lasted seventy-five days, when the Aztecs surrendered to the invaders. Soon afterward the Spaniards destroyed *Tenochtitlan*, and built a capital of their own on the same site, which has since borne the name of *Mexico*. Cortes made a great mistake in founding the modern city on the site of the old one, which was situated on soft ground, and involved an expensive system of dikes and causeways. It would have been preferable to have selected an elevated spot in the vicinity, like *Tacubaya*, about six miles south of the capital. Scarcely a vestige remains of the ancient metropolis. Several Aztec monuments, such as the calendar and sacrificial stones, and a few idols, have been dug up on the site of *Tenochtitlan;* but the ruins of not even a single house or temple can be found to-day. These relics were practically incapable of destruction. Accordingly, they were buried.

The *teocalli*, or pyramid of the ancient capital, was much smaller than those of *San Juan Teotihuacan* and

* Now spelled *Texcoco*. † About seven and a half miles.

Cholula. It was ninety feet on each side at the base, and decreased as it advanced in height to a surface of thirty feet square. There were two altars on the summit. Thus much for the history of *Tenochtitlan.*

The valley of Mexico, near the center of which lies the capital, is about forty-two miles long and about thirty miles wide. It contains six lakes, which were originally one large lagoon. Their names are—beginning at the south—*Xochimilco, Chalco, Texcoco, San Cristobal, Xaltocan,* and *Zumpango.* The last-named lake is the highest, while *Texcoco* is the lowest and largest. Lake *Texcoco* has heretofore received the overflow of the others. Their aggregate area is about twenty-two square leagues. The water of these lakes is salt, except *Chalco* and *Xochimilco.* They are probably the highest bodies of salt-water in the world.

The climate is temperate, the mean annual temperature being 60° Fahr. There is considerable moisture in winter and during the rainy season, from June to September. The most changeable weather occurs in February. May is the hottest month. During the entire year the early morning is cold, the thermometer generally falling to about 40° Fahr., and occasionally sinking below the freezing-point. There are no fireplaces nor hot-air furnaces in the hotels of Mexico, which circumstance renders a stranger uncomfortable during damp and cold weather. Travelers are cautioned to be extremely careful to avoid taking cold on reaching the capital. Many of the buildings are old, and the doors and windows do not fit tightly.

Mexico can hardly be called a healthy city. The great desideratum of the capital is proper drainage. This subject has been investigated by the ablest minds in the country from time immemorial. During the Spanish domination the dikes and causeways often proved insufficient to protect the city from floods. Since the foundation of the

capital, or since the Conquest, there have been five great inundations, viz., in 1553, 1580, 1604, 1607, and 1629–'34.

In 1607 the Viceroy Salinas began the artificial drainage of the lakes, by constructing a canal at *Huehuetoca*, on the northern side of the valley. This canal, or *desague*, is described at length in the section on the *Mexican Central Railroad*, which now passes through the remains of it. The Indian system of dikes had been temporarily abandoned, and the canal proving a failure, the result was a terrible inundation in 1629, which lasted five years. During this period communication was made by means of canoes, the seat of government was removed to one of the suburbs, trade was at a stand-still, and the distress and misery of the lower classes baffled all description. It was deemed advisable to return to the dike system, which has been preserved ever since.

For many years the *Plaza mayor* was only three or four feet above the level of Lake *Texcoco*. The level of this lake varies from year to year, and there is now a gauge on the *Plaza mayor* to indicate the height of its waters. Owing to evaporation the surface of the lake is much lower than during the reign of the viceroys. In the winter of 1882–'83 it was about six feet *below* the *Plaza mayor*. There are no cellars in the City of Mexico, and water is reached a few feet below the street-pavement. The soil is so soft that a solidly cemented foundation of lime and stone is used for the larger buildings.

In 1882 an American company entered into a contract with the Mexican Government to drain the valley of Mexico, agreeing to deposit a bond of $200,000 as a guarantee to carry out the scheme. The last session of Congress, however, declared this contract forfeited on account of the failure to file the bond.

It has been suggested that a thorough system of drainage for the capital would do more harm than good, for the

reason that the heavier buildings might settle so much as to render them unsafe. The early Spanish historians narrate that, before the Conquest, the valley of Mexico was covered with dense forests. The foreign invaders made war on these forests, as did the Puritans in New England, and to-day, with the exception of the magnificent grove of *Chapultepec*, there are only a few rows of trees of recent growth along the causeways.*

The houses in the capital are built of heavy masonry, with stairways of stone, and with roofs and floors of brick and cement. Each building includes one or more open court-yards, or *patios*. These *patios* are either paved with flag-stones, or planted with flowers and shrubbery, and adorned with fountains and statuary. In the suburbs the dwellings do not generally exceed one story in height, but in the heart of the city they frequently rise to three. The entrance of each house from the street is by a single *porte cochère*, which is closed at night, and attended by a porter, who occupies an adjoining room, and who is held responsible for the entries and exits.

The capital is virtually fire-proof, it being next to impossible to set fire to a Mexican house.

In dwellings of more than one story, the upper floor, on account of the higher ceilings, is always preferred as a residence, although it commands the highest rents. The ground-floor is commonly occupied for business purposes—*e. g.*, for stables, store-houses, or workshops.

There are no aristocratic streets nor quarters in the City of Mexico, the homes of both the upper and lower

* The Mexican Government has recently made a contract with Oscar A. Drorge to plant 2,000,000 trees in the valley of Mexico within four years, 500,000 a year, for $200,000. The contractor agrees to put in annually 80,000 ash, 35,000 willows, 12,000 poplars, 60,000 eucalypti, 60,000 acacias, and other varieties, in plantations of from 50,000 to 100,000; and to receive in his nurseries three graduates annually of the Agricultural School.

classes being scattered over the metropolis, and oftentimes being found under the same roof.

The capital is indifferently watered by two aqueducts containing respectively clear and muddy water.

The supply is conducted by pipes to numerous tanks and open fountains located in all parts of the city, whence it is distributed for family use by a licensed corps of *aguadores*, or water-carriers. Their charges are from two cents to twelve and a half cents a load, according to the distance of the fountain from the place of delivery.

The public edifices and business houses are lighted with gas of inferior quality. In private dwellings kerosene-oil and stearine candles are generally used. Some quarters of the city are illuminated with lamps of gasoline or petroleum. Recently, the electric light has been employed on the *Plaza mayor* and adjacent streets.

PLACES OF INTEREST.—1. The Cathedral and *El Sagrario*. 2. The Palace and Maximilian's Coach. 3. The Museum (*El Museo Nacional*). 4. The Academy of *San Carlos*. 5. The Mining School (*Colegio de Minería*). 6. The Mint (*Casa de Moneda*). 7. The Church of *La Santissima*. 8. The Church of *Santo Domingo*. 9. The Church of *La Profesa*. 10. The Church of *Santa Teresa*. 11. The Church of *San Fernando*. 12. The Convent of *San Francisco*. 13. The National Library (*La Biblioteca Nacional*). 14. The Park (*La Alameda*). 15. The Tivoli Gardens. 16. The Drive (*Paseo de la Reforma*). 17. The Canal (*El Paseo de la Viga*). 18. Alvarado's Leap (*El Salto de Alvarado*).

IN THE ENVIRONS.—1. *Chapultepec*. 2. *Atzcapatzalco* and the *Noche-triste* tree. 3. *Tacubaya* (Military Academy and private residences). 4. *Guadalupe* (church and chapel). 5. *La Piedad* (*Al Fresco*, the American Club). 6. *San Angel*. All of which are reached by horse-cars from the *Plaza mayor*.

We have not space enough to give a minute account of each one of the above objects of interest; accordingly, a brief reference will be made to them in the above order:

1. The tourist should ascend one of the towers (200 feet high) of the Cathedral for a view of the city (fee, *one real*). This edifice was commenced in 1573, and finished



Plaza Mayor, Mexico.

in 1667, at a cost of $1,750,000. It covers a space of about 432 × 200 feet. This Cathedral is the largest in North America. Some of the paintings within are said to be the work of *Murillo.* The Emperor *Iturbide* is buried in one of the chapels. The Aztec temple, or *teocalli,* formerly occupied the site of the Cathedral. The famous CALENDAR-STONE leans against the wall of this building. It is twelve feet in diameter, three feet thick, and weighs twenty-five tons. The *Sagrario* has a beautifully carved façade. Just east of it is a monument erected to the memory of the distinguished engineer *Enrico Martinez,* which contains a gauge to register the level of Lake *Texcoco* in the pedestal.

2. The PALACE, which is built on the site of that of Montezuma, is the largest building in Mexico, the front measuring 675 feet. It contains the Embassadors' Hall, or *Sala de Embajadores,* and Maximilian's Coach. The former is a room about 310×30 feet, with a throne at the southern end for the President and his Cabinet. It has, among other objects, full-length portraits by *Segredo* and other Mexican artists of the heroes of the War of Independence, such as *Hidalgo, Morelos, Allende,* and others; also portraits of *Juarez, Diaz,* and *Washington,* and a large painting of the great battle of *Puebla,* of May 5, 1862. MAXIMILIAN'S COACH is in a room on the ground-floor, near the center of the Palace. The body of the vehicle is painted dark red. The wheels are gilded, and the interior is lined with white-silk brocade, with trimmings of heavy silver thread. There is no other coach of equal magnificence in the Western World. It surpasses in elegance the imperial carriages of Russia. Strangers should not fail to see it. The doors of the Embassadors' Hall and of the room containing the coach are always locked. The keys may be obtained at the office of the Governor of the Palace, which is near the middle door of the façade. (A fee of *one real* should be paid to the *mozo* who shows

the traveler the coach, and *two reales* to the servant who opens the door of the *Sala de Embajadores.*)

The Cathedral and Palace are situated on the *Plaza mayor*, in the center of which is the *zócalo.*



Quetzalcoatl.

3. The MUSEUM contains the sacrificial stone and many idols on the ground-floor; and Maximilian's silver service, several portraits, a large collection of Mexican curiosities, chiefly pottery, and photographs of the ruins of *Yucatan* and *Chiapas*, are found on the second story. It is to be regretted that the latter part of the Museum is open to the public only on

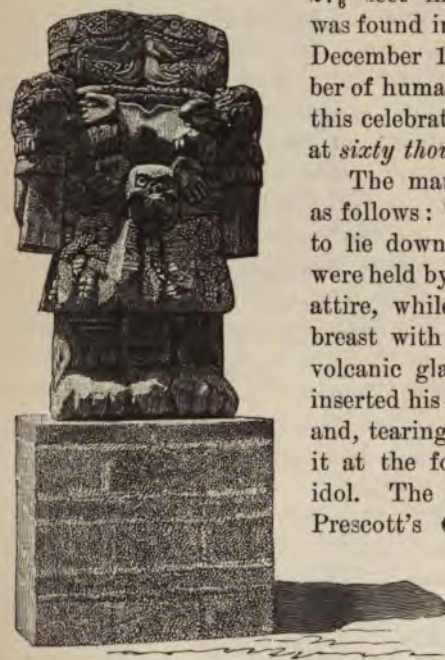


Feathered Serpent.

These idols are in the *patio* of the Museum.

Sundays from 10 A. M. to 1 P. M., *Tuesdays* from 10 A. M. to 12 M., and *Thursdays* from 3 to 5 P. M.

The court-yard is always open to visitors. The sacrificial stone (*Piedra de los sacrificios*) is the principal object of interest. It is 8⅔ feet in diameter, 2¾ feet high, and 27⅛ feet in circumference. It was found in the *Plaza mayor* on December 17, 1791. The number of human beings sacrificed on this celebrated stone is estimated at *sixty thousand!*



Teoyaomiqui.

The manner of sacrifice was as follows: The victim was made to lie down, his feet and hands were held by four priests in gaudy attire, while a fifth pierced his breast with a razor of *itztli*, or volcanic glass. The latter then inserted his hand into the wound, and, tearing out the heart, threw it at the foot of the adjoining idol. The reader is referred to Prescott's *Conquest of Mexico*, vol. i, pages 74–86, for a full description of human sacrifices. We have not space to describe the serpent-idols and other objects, the number of which is forty-seven. Small catalogues in Spanish are sold at the door. It may be said that the collections made by M. Charnay in Southern Mexico, through the liberality of Pierre Lorillard, Esq., of New York, are in the museum, although not on exhibition, with the exception of a few objects. It was the pur-

pose of M. Charnay to send his collections of antiquities to Paris, but the Mexican Congress refused to pass a bill allowing the articles to be taken out of the country.

4. The ACADEMY OF SAN CARLOS is the only academy of the fine arts in the country, except one at *Guadalajara.* It contains a large number of paintings and some plaster casts of well-known statues. Most of the pictures are the work of foreign artists, such as *Zurbaran, Murillo, Rubens, Correggio,* and *Velasquez.* Some of them have been painted by Mexicans, and possess considerable merit. The principal native artists are *José* and *Luis Juarez, Cabrera, Parra,* and *Balthazar de Chave.* Unfortunately, there is no catalogue of the pictures. An art-school is connected with the academy. (*Vide* Chapter XXII.)

5. The MINING SCHOOL was considered by Humboldt as one of the finest buildings in the country. It occupies a lot 300 × 340 feet, and has collections of rocks, minerals, and fossils, chiefly from Mexico. It cost $1,500,000.

6. The MINT is the oldest in Mexico. It is open from 8 A. M. to 5 P. M.

7. The Church of LA SANTISSIMA is noted for the exquisite carvings on the façade.

8. The Church of SANTO DOMINGO, in a square of the same name, possesses beautiful gilt wood-work, some old paintings, and a wooden model of the Saviour, in a recumbent attitude, and wearing a crown of thorns. Persons entering the church kiss the toe of this figure in the same manner as devout Roman Catholics kiss the statue of St. Peter at Rome. A table stands near the image to receive offerings (*limosnas*). The ruins of a convent, overgrown with weeds, are in the rear of the church. The Custom-House and Medical School are situated on the eastern side of the *Plaza de Santo Domingo.* The latter was once used by the Inquisition, and it now has a library and anatomical museum.

11. The Church of SAN FERNANDO contains the ashes of the unfortunate Generals Mejia and Miramon.

16. The PASEO DE LA REFORMA (sometimes called *El Paseo de Bucareli*), or "Empress Drive," leads from the *Alameda* to *Chapultepec*. Statues of *Charles IV* of Spain, *Christopher Columbus*, and President *Juarez*, have been erected on the *Paseo*. The fashionable hour for driving is from 5 to 6 P. M.

17. The CANAL, adjoining the *Paseo de la Viga*, presents a busy scene in the early morning. The Indians bring their fruits and vegetables to market, and the canal is crowded with their rafts and canoes. The tourist should hire a canoe and visit either Lake *Texcoco*, about three miles distant, or the "vegetable" gardens, a mile and a half from the terminus of the "*Viga*" horse-car track. A party of three or four persons may employ an Indian to paddle them to the gardens for the sum of one dollar. There is no tariff of charges, and a bargain must be made. Sailing through the narrow canals cut in the marshy soil, where fruits, vegetables, and flowers grow abundantly, the traveler may form some idea of the ancient aspect of the Venice of the New World. The *chinampas*, or so-called *floating islands*, which have always excited the wonder of foreigners, are never seen at the present day. They were formed of small masses of earth, covered with herbs, and held together by roots, and were detached from the shore of the lagoon by the waves during stormy weather. These gardens are known to have been in use as far back as the end of the fourteenth century. They were afterward artificially constructed by making rafts of reeds, rushes, roots, and brushwood, and covering these with black mold naturally impregnated with muriate of soda, but gradually purified from the salt and rendered fertile by washing it with the water of the lake. Some of the *chinampas* were movable and driven about by the winds, but others were anchored or at-

tached to the shore, and were towed or pushed with poles from one spot to another. The Indians occasionally built huts on these *chinampas,* and are said to have raised vegetables on them.

18. ALVARADO'S LEAP is marked by a small bridge in the *Calle de los Hombres Ilustres,* just west of the *Alameda.* The *San Cosme* horse-cars pass the spot. This street was formerly a causeway leading from the capital toward the mainland, over which the Spaniards passed in the evacuation of the city on the memorable *noche triste,* or "sad night" of July 1, 1520. The portable bridge over a breach in the causeway had been destroyed, and *Alvarado,* unwilling to plunge into the waters of the lake, paused upon the brink for a moment. Resting his long lance on the ground, he succeeded in leaping across the gap, to the great astonishment of both the Spaniards and Aztecs. This place has ever since been known as the *Salto de Alvarado.* As the width of the breach is not given by the chroniclers of the time, the reader can have no means of judging how skillful a pole-vaulter this Spanish warrior may have been.

A card of admission must be obtained at the Palace for permission to enter the castle of CHAPULTEPEC.* During the French invasion the castle was occupied by *Maximilian,* that personator of Napoleon's dream of empire in the Western World. The view from *Chapultepec* is one of surpassing beauty, and the grounds contain a magnificent grove consisting chiefly of cedars draped with Spanish moss. One of the trees has been named after *Montezuma.* The stranger is advised to hire an open carriage by the hour, and drive to *Chapultepec* and the neighboring town of *Tacubaya,* visiting the Military School and stately villas if possible.

The celebrated NOCHE-TRISTE tree is situated in the village of *Popotla,* near an old church. Cortes is said to have

* *Chapultepec* means "grasshopper's hill."

sat under this tree and cried over his misfortunes, after the disastrous retreat of the Spaniards during the night of the evacuation. The tree is known to the Indians as the *ahuehuete*, and is called a *sabino* in Spanish. It is a species of cedar, and is ten feet in diameter at the base and



The Noche-triste Tree.

about forty feet high. An iron railing surrounds it. The ATZCAPOTZALCO horse-cars run through the *Riviera de San Cosme*, passing *Alvarado's* Leap, the houses of the foreign legations, the Tivoli Gardens, the School of Agriculture, the *Tlaxpana* aqueduct, and the *noche-triste* tree, before

reaching their destination. This aqueduct was built by the Spaniards, and contains the *agua delgada,* or soft water. It has nine hundred arches of about fifteen feet in height, each of which is said to have cost $1,000. At *San Cosme* the aqueduct terminates, and the water is conducted underground in pipes to the heart of the city.

The causeway that leads to *Popotla* and *Atzcapotzalco* is bordered on either side with a deep ditch into which the water drains and becomes stagnant. The surrounding region, which is now much lower than the causeway, was formerly a part of the great Mexican lagoon. Many of Cortes's soldiers were drowned here on the "sad night."

The suburb of GUADALUPE is remarkable for its cathedral and chapel. It is reached by horse-cars from the *Plaza mayor* in about thirty minutes. The cathedral is a massive brick edifice, with four towers around a central dome. The interior is noted for the solid silver railing, about three feet high, which leads from the choir to the high altar and extends around the edge of the latter. The famous picture of the Virgin hangs in the high altar. The choir is adorned with artistic wooden carvings, and there is a large organ on each side of it. There are a great many *ex-votos* hung on the wall of the cathedral near the main entrance. They are principally cheap oil-paintings and wax-work.

The sanctuary of *Guadalupe* is, perhaps, the most celebrated in the Republic, and the story of how it was built and named after *Nuestra Señora de Guadalupe* is interesting. The tradition is as follows: An Indian called Juan Diego worked in the vicinity of *Guadalupe.* On one occasion, while crossing the hill of *Tepeyacac* that rises behind the town, he saw a rainbow, in the middle of which was a beautiful woman encompassed by a white cloud. Upon approaching the figure, the Indian was told that she was the mother of God. The Virgin said that she desired a



The Aqueduct and Fountain, Mexico.

temple to be built in that place, and that she would render aid and protection to all believers who would call upon her when in trouble. She further commanded him to report to the Bishop of Mexico what had taken place. The Indian did as he was directed, but *Zumarraga,* who was then bishop, discredited his statement. The Virgin appeared to the Indian several times afterward, and on one occasion ordered him to pick flowers from the barren mountain and take them to the bishop. Accordingly, he gathered beautiful flowers where none had previously grown, and carried them in his *tilma* or cloak to the episcopal palace. After telling his story, the Indian dropped the flowers on the floor, when suddenly the bishop fell on his knees at the sight of the image of the Blessed Virgin, that appeared to be painted on the cloak of Juan Diego.

A long poem has been written on this miraculous appearance of the Virgin, and it is sold in book-form at the door of the cathedral. Ribbons of various colors, giving the size of the head of Our Lady of *Guadalupe,* are also offered for sale. A high mass is celebrated on the 12th day of every month, and on the 12th of December a great religious festival takes place, which is attended by persons from all parts of the Republic. It is the anniversary of the day upon which the Virgin first appeared to Juan Diego. Among the illustrious dead buried in this cathedral are the Viceroy Bucareli and Colonel Obregon. The original flag that was carried by Hidalgo in 1810 is deposited here.

The chapel of *Guadalupe* is situated on a hill directly behind the cathedral. A good view of the valley of Mexico may be obtained from the façade of the former.

The famous Treaty of *Guadalupe Hidalgo* was signed at this place on the 2d of February, 1848.

The battle-fields of *Chapultepec, Molino del Rey,* and *Cherubusco,* lie a few miles south of the capital. A hand-

some stone monument has been erected, by Generals Diaz and Gonzalez, near the castle of *Chapultepec*, to the memory of the heroes of the war of 1847.

The tourist will have some difficulty in finding his way about the streets of the City of Mexico, as each block has a different name. Some streets have the same appellation for two or three squares, with a number added to each one —*e. g.*, *1a*, *2da*, and *3ra de San Francisco*.

The principal business thoroughfare is the *Calle de Plateros*, which leads from the *Plaza mayor* toward the *Alameda*.

The finest shops in Mexico are on this street; English and French are spoken in some of them. Several new buildings are being erected, and others improved, in this part of the city.

A walk through the colonnades known as the *Portal Mercaderes* will be found interesting. The military band plays in the adjoining *zócalo* four evenings in the week.

Strangers will be pleased with the variety of Mexican costumes seen in the public squares. The black-cloth suits ornamented with silver buttons, and broad-brimmed felt hats with silver bands, are the most picturesque of all.

A great deal of *pulque* is consumed in the national capital, and the traveler will meet many intoxicated persons on the street. It is said that there are two thousand shops, or *pulquerías*, in the city, at which thirty thousand gallons of *pulque* are consumed daily.

If the tourist has but a single day to spend in the capital, he should visit the *Cathedral*, *Palace*, *Museum*, *Academy of San Carlos*, *Church of Santo Domingo*, *Paseo de la Reforma*, *Chapultepec*, and go to the opera in the evening.

There is some kind of opera, either French, Spanish, or Italian, nearly all the year round.



Pyramids of San Juan Teotihuacan.

EXCURSIONS AROUND THE CAPITAL.

We would advise the tourist to leave his trunk at some hotel in the City of Mexico, and make short trips in all directions.

The best excursions are as follows:

1. From MEXICO to CELAYA *via* Mexican Central Railroad, and return *via* MARAVATIO and TOLUCA. This route is described in Sections IV and V.
2. To the Pyramids of SAN JUAN TEOTIHUACAN. Distance, 25 miles.

Take the morning train to the station of the same name on the Mexican Railway, and walk or drive to the pyramids, about two miles distant. The larger one is dedicated to the *Sun*, and the other is called the pyramid of the *Moon*. An extensive view may be had from the summit of the former. The valley of Mexico is clearly seen, and in the distant south the *Nevado de Toluca* is visible. (See chapter on ruins for a complete description of the *teocallis*.) There are no hotel accommodations at *San Juan Teotihuacan*. A bad *fondita* may be found in the town, but the traveler is recommended to carry provisions with him from the capital, and return by the afternoon train.

3. From MEXICO to PACHUCA. Distance, 57 miles.

Pachuca contains some of the oldest mines in the Republic. Many of them were worked long before the Spanish Conquest. The town lies in the State of Hidalgo, and is reached by rail from the City of Mexico to *Irolo*, and thence by tramway. (Hotel, *San Carlos*.) There is a governmental school of practical mining here. The population of *Pachuca* is about 13,000, of which 5,000 are miners, and the altitude, as measured by Humboldt, is 8,150 feet. A great many Cornishmen are employed here, although this mining district is one out of a very few in which European or American miners have been introduced. *Pachuca* contains about one hundred and fifty mines, and *Real del*

Monte has seventy-five of them. The ore is composed mainly of blackish silver sulphides. Several English companies have established themselves in *Pachuca,* and an American company has recently been organized to work the tailings of some of the older mines. It is highly probable that improved mining machinery will soon be used in this district. Compressed cakes of English coal are imported at the rate of $22 a ton! It is said that a valuable deposit of coal has lately been discovered in the vicinity. Excursions may easily be made from *Pachuca* to the adjoining mining town of *Real del Monte* (elevation, 9,057 feet), and to the town and cascade of *Regla,* and also to the village of *El Chico.*

4. From MEXICO to CUERNAVACA. Distance, 47 miles by diligence. Fare, $4.50. Time, nine and a half hours. Stage-coaches run three times a week.

Leaving Mexico, the road leads over a causeway, bordered with a row of poplars on either side, to the suburb of *Tlalpam,* about seven miles distant. A horse-car track runs parallel with the road. Thence the route turns to the southeast, and lies over a sandy region as far as the end of the valley of Mexico.

The lofty mountain of *Ajusco* is seen on the west, and the Lake of *Xochimilco* on the east. The diligence now begins to ascend the pass leading through the ridge which forms the southern boundary of the plateau of *Anahuac.* The roadway is smooth, and kept in good order as far as the summit, and the grade is moderate. As the stage-coach climbs the winding pass, the tourist soon obtains a beautiful view of the valley of Mexico, whose surface is dotted with various extinct volcanoes, and the several lakes that have already been mentioned. Picturesque villages are scattered over the oval-shaped plain.

Proceeding farther, the traveler enters a region cov-



Silver-mill, Pachuca.

(The *patio* process is described on page 267.)

ered with thick grass, interspersed with pines and spruces, reminding him of a northern flora. Many pack-trains of *burros*, or donkeys, are seen on the road. They carry, principally, fruit and vegetables to the capital. The diligence stops for lunch at a hamlet on the ridge-line, where the road is level for about two miles. Soon the summit of the pass is reached, the spot being marked by a stone cross, which is said to have been erected by Cortes. This cross marks the northern boundary-line of the grant of Montezuma to the Conqueror. According to the measurement of an aneroid barometer, the elevation of this point is 9,540 feet.

The road now descends gradually. It is stony, and much rougher than the northern portion of the route. Fortunately for tourists, however, this highway is undergoing repairs, and is already the best and, perhaps, the oldest line of travel for diligences in the Republic. As the observer continues on his journey down-hill, he will see the distant city of *Cuernavaca* on the south. The city lies on a *mesa*, or natural terrace, beyond which is a broad valley running east and west.

The coach soon reaches another hamlet, and the animals are changed for the last time. Five mules, instead of eight, are sufficient to draw the vehicle over the rapidly descending grade, and in about an hour the tourist arrives at his destination.

CUERNAVACA.

Population, 16,320. Elevation, 5,380 feet, according to Humboldt.

HOTELS.—*San Pedro* and *Del Fenix*, both on the *plaza*.

BATHS, one block north of the *San Pedro*.

PLACES OF INTEREST.—1. Cortes's Palace. 2. The Parochial Church. 3. The Church of *Guadalupe*. 4. The *Borda* Gardens. 5. Maximilian's villa at *Acapancingo*.

Cuernavaca, the capital of the State of *Morelos*, was originally called *Quauhnahuac* (*i. e.*, near the beautiful hills), a term given to it by the *Tlahuicos*, who were the

founders of the city. It was conquered by the Spaniards in April, 1521. Both of the foreign usurpers, Cortes and Maximilian, made this place their favorite winter resort.

Cortes's Palace is now used as a court-house, and has been rebuilt since the Independence of Mexico. The *Borda* Gardens, once very beautiful, are in ruins. They are on the western edge of the town, and are worthy of a visit. Maximilian's villa is now used as a school-house. It is called *El Colegio de Niñas.* A handsome garden adjoins the villa, but it is not in good condition. Cotton, coffee, bananas, and palms, besides flowers, grow here. The unfortunate emperor occupied this place from January to October, in 1866. He is said to have built the charming villa at his own expense. The snow-clad mountains of *Popocatepetl* and *Iztaccihuatl* are in full view, and lie about twenty-five miles to the eastward.

The village of *Acapancingo* is situated about one mile and a half southeast of *Cuernavaca.* There was once a good wagon-road thither, but now it is practicable only for horsemen and pedestrians.

Much sugar-cane is grown in the neighborhood, and a crop may be reaped within twelve months after planting the cuttings.

The tourist should visit the temple or fortress of *Xochicalco,* which is one of the most remarkable remains on Mexican soil. It lies eighteen miles from *Cuernavaca,* on a rocky eminence, almost a league in circumference, which is cut into terraces faced with stone. The building on the summit is seventy-five by sixty-six feet in area. It is of hewn granite, and was constructed in the usual pyramidal-terraced form. A few years ago this temple was used as a sugar-refinery.

An excursion may be taken from *Cuernavaca* to the famous cave of *Cacahuamilpa,* which lies in a limestone region, about forty miles south of the city. It can be reached

by wagon or horseback. As no hotel accommodations are to be had, the tourist is advised to carry blankets and provisions for three days. The cave has not yet been fully explored.

A trip to *Tasco* (fifty-four miles distant) may also be made from *Cuernavaca*. The town contains silver-mines that were worked before the Conquest. It has also a beautiful parish church. The altitude of *Tasco* is 5,852 feet, according to Humboldt.

5. From Mexico to Cuautla.

This excursion may include the great volcano of *Popocatepetl*. (The entire route is described in Section VIII.)



Indian Hut in the Tierra Caliente.

SECTION IV.

The Mexican National Railway (Compañía Constructora Nacional Mexicana).

(For description of this railway, see Part First.)

We will first sketch the western branch of this railway, from *Mexico* to *Manzanillo*, on the Pacific coast, and then give an account of the northern route, from *Acambaro* Junction to *Laredo* and *Corpus Christi*. The region adjacent to the railroad, and connections by stage and horseback with stations along the line, will be described in detail.

Route I.

FROM THE CITY OF MEXICO TO MANZANILLO.

1. *Mexico* to *Toluca.*
2. *Toluca* to *Maravatio.*
3. *Maravatio* to *Morelia.*
4. *Morelia* to *Pátzcuaro* and thence to *Manzanillo.*
5. *Pátzcuaro via Ario* to *Jorullo.*

1. From MEXICO to TOLUCA, 73 kilometres, or 45½ miles. Time, 3½ hours. Two passenger-trains daily. Take left-hand side of the train for view.

Leaving the station of *Colonia*, the line passes over the fertile plain of *Mexico*. The castle of *Chapultepec* is seen on the left. The first station is *Union de Tacuba* (4·59 kilometres); the next station is *Union de Naucalpan* (8·62 kilometres). Now the land begins to rise, and the grade soon becomes very heavy. Passing the hamlet of *San Bartolo* (9·18 kilometres), we reach *Rio Hondo* (14·28 kilome-

tres), where the elevation is 7,550 feet, or 203 feet above the capital. The track soon enters the foot-hills of the ridge forming the western boundary of the valley of Mexico.

There are many cuts through the alluvial drift and clay. *Nopales*, or cactus-trees, are very common in the vicinity of the line of the railroad.

After passing *Rio Hondo* a heavy grade begins. The train crosses gulches, with roaring brooks at the bottom. On the northern side of the track, and near the station of *San Bartolito* (22·09 kilometres), traces of an ancient aqueduct are seen. We soon pass through a cut in granite rock, and then stop at the station of *Dos Rios* (27·15 kilometres).

The road now enters a picturesque valley half a mile in breadth, where some maize is grown. The farms are divided by long hedges of the *maguey*, which appear to take the place of fences. The natives cover the roofs of their huts with heavy stones, to prevent the wind from blowing them away. The traveler will observe towers about ten feet high adjoining the houses. They are cribs for storing corn, and are called *cincolotes*.

This region has a sparse population ; only a few huts of stone and straw are to be seen. The track skirts the sides of enormous ravines or *barrancas*. The next station is *Via de Escape Tunnel* (30·46 kilometres). We can now look across the valley, where the track is much higher than our place of observation. After passing through the tunnel and winding round long curves, having in places a compensated grade of about four per cent, the tourist, on glancing back, will have a fine view of the distant valley of *Mexico*, with the stately capital and picturesque *sierras* beyond. The famous home of the Aztecs appears to be surrounded by lakes. The valley below the line of the railroad bears the name of *San Lazar*, and the hamlet on the hill bounding the south side of the cañon is called *San Franciscito*. We next reach the station of *Escape de San Martin* (35·30

kilometres). The pines, spruces, and other trees of a stunted character, remind the traveler that he has ascended to a great elevation. Leaving the valley and going through several cuts in the solid rock, the train arrives at *Cima*, or Summit (39·12 kilometres). This is the highest point of the railroad, and would be called the "divide" by Americans. Its elevation is 9,974 feet above tide-water. It is the highest railway-station in Mexico. The brook on the south side of the track, which the tourist has just passed, is the *Rio Hondo*. It flows into the valley of Mexico; while the little stream on the north side of the railroad is the south fork of the *Rio Lerma* (one of the largest rivers of the Republic), which, after traversing the States of *Mexico, Michoacan,* and *Guanajuato,* empties into the Lake of *Chapala.*

The rock at *Cima* is a reddish trachyte, and is used to ballast the track. The road now crosses a flat, grassy plateau. The next station is *Salazar* (41·29 kilometres). There is a bar as well as a lunch-room in the station. The scenery in the vicinity closely resembles that of the Rocky Mountains. The pines and spruces attain a considerable height. The grade soon begins to descend, and the view henceforth is better on the right-hand side of the car. The train follows the course of the *Rio Lerma,* crosses the old stage-road, and arrives at the station *Camino de Toluca* (44·51 kilometres). The tourist may now see the majestic snow-clad mountain, the *Nevado de Toluca,* an extinct volcano, 15,156 feet high, and about twenty miles distant. The track crosses a bridge built over a ravine. An aqueduct is being constructed at the bottom, to carry the water of the *Rio Lerma* to the flour-mill at *Jajalpa.* Soon the station of *Jajalpa* (51·24 kilometres) is reached. Here the elevation is 8,872 feet. It is worthy of remark that one of the few *steam* flour-mills in the country is found at this town. Wood is brought from the neighboring hills for

fuel. Fine wheat grows here, and the *maguey* is also cultivated. The track now winds round many long curves, and presently a grand view of the broad valley of *Toluca* is obtained. Looking out of the car-window, the observer may see the line of the road far below him.

The next station is *Camino de Ocoyoacac* (55·40 kilometres). The train runs along the side of the mountains, and soon the town of *Ocoyoacac* is seen in the plain below. The streets are well laid out, and there is considerable stir on the *plaza*, but the church is by far the most conspicuous object, as it is in other Mexican and Spanish towns. We now arrive at the station of *Lerma* (59·55 kilometres). The elevation of this place is 8,456 feet. The houses of *Lerma* are built of adobe, with tile roofs. Much *maguey* is grown in the vicinity. The *pulque* from the valley of *Toluca* is famous. The road runs over the plain for about eight miles, and the next station is *Toluca*, 73 kilometres from the capital. This place, with perhaps the exception of *Ameca-meca*, in the State of *Mexico*, is the city of the highest altitude in the Republic, being 8,653 feet above the sea-level. The *Nevado de Toluca*, an extinct volcano several miles to the south, is the most prominent feature in the landscape for many miles. This mountain is often cloud-capped.

TOLUCA.

Population, 11,500.

HOTELS.—*Gran Sociedad*, *Espagñol*, *Hidalgo*, and *Bella Union*. There are also several restaurants and cafés.

BATHS, in the *Calle de Victoria*.

TEATRO PRINCIPAL, behind the Hotel *Gran Sociedad*.

PLACES OF INTEREST.—1. *Carmen* church and monastery. 2. Church of *Vera Cruz*. 3. *Plaza de los Martiros*, where a monument in white marble, about twelve feet high, has been erected to the great patriot *Miguel Hidalgo y Costilla*. 4. *Palacio Municipal*. 5. The *Pasco*.

Toluca is a well-built and thriving town. The streets are clean and well drained. The tourist may obtain a

correct idea of the topography of *Toluca* and environs by walking up the hill on the southwestern side of the city. It is not more than fifteen minutes' walk from the principal hotels.

A pleasant excursion may be made to the *Nevado de Toluca* (15,156 feet high). This mountain is always snow-clad, but in winter it is covered with snow for about one third of the way down from the summit. There is a ranch on the ridge, just below the timber-line, where the traveler can pass the night. A very extensive view may be obtained from the top of the volcano. On a clear day the Pacific Ocean, one hundred and sixty miles distant, is visible; and it is said that the Gulf of Mexico can even be seen with a powerful field-glass. Baron von Humboldt ascended the peak of *Toluca* on the 29th of September, 1803, and measured the height of the mountain by the barometer. He states that the highest point, the *Pico del Fraile*, is difficult of ascent, and the very top is scarcely ten feet wide.* Humboldt found the rock to be a combination of oligoclase and hornblende (diorite). Two entire days will be required to climb the *Nevado de Toluca—i. e.*, from the city of *Toluca* and *back*. The traveler should take provisions, blankets, guides, and horses sufficient for the journey.

2. From TOLUCA to MARAVATIO, 150 kilometres, or 93 miles. Time, 7 hours.

Leaving *Toluca*, the road continues due west along the broad valley. Much wheat is grown in the vicinity. One farmer sold seventy-seven thousand dollars' worth last year (1882). The next station is *Del Rio* (97 kilometres). The railway-station is in a freight-car on a siding.

The line soon winds along the bank of the *Rio Lerma*, with bluffs of a clayey limestone on one side. We pass through the tunnel of *Ixtlahuaca*, and reach the station of

* See *Cosmos*, vol. v, p. 376.

the same name (111·50 kilometres). Here the elevation is 8,423 feet. The town lies about a mile north of the track. The traveler may see the boundary-line of the States of *Mexico* and *Michoacan* near by. Stone monuments about three feet high are placed in the ground every thousand yards. One of them is very close to the railroad. Presently the line crosses the *Rio Lerma* and continues through a fertile country. Good pastures for cattle abound here, and the tourist can see many fine *haciendas* from the car-window. The track has usually been laid some distance from the hamlets and villages. Hogs are raised in considerable numbers on the estates along the line of the *Toluca* and *Maravatio* division of the National Railway, and yet no one has had the enterprise to put up hams for domestic use. The natives seem to prefer to import American hams at 50 cents and those of Westphalia at 62½ cents a pound. It is believed that hams could be sent from *Toluca* to the capital and sold at a handsome profit for 20 cents a pound. This is only one out of many business chances that await the American or European settler in Mexico.

Flor de Maria (133·90 kilometres) is the next station. Here the conductor calls out in English, "Half an hour for dinner." The dining-room consists of a freight-car, and the kitchen is in an adjoining car on a siding. The tourist is agreeably surprised at finding an excellent dinner served in such a primitive eating-house. Six *reales* is the price charged. We soon come to the station of *La Jordana* (149·90 kilometres). The next station is *El Oro* (164 kilometers), where the elevation is 8,344 feet. There are mines containing gold and silver on the hill-side about four miles southwest of this place. A New York company owns them. A forty-stamp mill has been erected at great cost, owing to the machinery having been transported, first over the Mexican Railway with its enormous

rates, and then by wagon-road to *El Oro*. The ore is worked in the same manner as in California. The country rock is slate. The main shaft of the mines at *El Oro* is now full of water, and steam-pumps are about to be used to raise it.

Gold-mines are found also at *Tlalpujahua*, nine miles from *El Oro* station. A stage-coach runs to them. These mines are among the oldest in Mexico, and were worked before the Conquest. It may be remarked that there is a great deal of undeveloped mineral wealth in the State of *Michoacan*. The well-known mining districts of *Trojes*, *Chapatuato*, *Ozumatlan*, and *Sinda*, can be reached in two days on horseback. The ores of gold and silver with a quartz gangue occur here. But, as the tourist will have difficulty in procuring horses and provisions at *El Oro*, the journey to these mining districts can be made more easily from *Morelia*, the capital of the State.

Returning to the railroad, take the left-hand side of the train for the view after leaving *El Oro*. We now cross the State line again, as the track is built partly in the State of *Mexico* and partly in *Michoacan*. The next station is *Cañon* (167·70 kilometres). Near by the tourist may see the ruins of a stone dam, where a supply of water was formerly stored for the benefit of cattle and sheep grazing in the vicinity. Soon the road-bed begins to descend rapidly and enters the *Cañon de los Zopilotes*, or Turkey-Buzzard Cañon. The creek of *El Salto* runs through the cañon and forms a cascade, which is a grand sight in the rainy season. The track has been blasted out of the solid basalt rock, and is a skillful piece of engineering. The cañon is about a mile long, and the observer on looking down may see a trail at the bottom running along the course of the roaring torrent. Trails are very common all over Mexico, as horseback-riding has been the principal means of communication up to the present day. Nearly every cañon, valley,

and plain can be traversed by a bridle-path. The railroad soon makes a sharp turn, and leaves the *Cañon de los Zopilotes.* The grade is still very heavy. A fine view of the broad and fertile valley below presents itself to the eye, and the observer will soon notice a cliff about two hundred feet high, on the right-hand side of the track, called the *Salto de Medina.* The cliff was so named after *Medina,* the chief of a noted band of brigands. He had been pursued to the edge of the precipice, and, finding escape impossible, blinded his mule with a *zarape,* and, spurring his animal, jumped off the cliff to prevent the officers of the law from capturing him. The line now runs along the side of the broad valley, making several long curves, and reaches the station of *Solis* (176·50 kilometres). The country is covered with basaltic rock, and tanks for watering live-stock are seen in places. *Tepetongo* is the next station (185·70 kilometres), and has an elevation of 7,652 feet. The region is overgrown with *nopal*-trees and the bush known as *huisachi,* resembling the *mesquite.* After passing the station of *Pomoca* (205·50 kilometres), we reach *Maravatio* (223·20 kilometres). The elevation of this town is 6,612 feet, and the population is about 10,000. (Hotel, *Diligencias.*) The town lies in a broad, grassy plain, surrounded by ridges of mountains. There is nothing of special interest to the traveler here. *Maravatio* is eleven hours' journey from the City of Mexico. Another and shorter route from the capital to this town has been surveyed—*i. e.,* the continuation of the division of *El Salto,* the line running northward from the capital, *via Tlalnepantla, Cuautitlan,* and *Huehuetoca,* to the station of *El Salto,* 67·29 kilometres from the capital. On November 1, 1883, only four kilometres of this line were constructed beyond *El Salto.* The Mexican *Central* Railway also runs to *El Salto,* and the country adjoining the latter road will be described in Section V.

8. From MARAVATIO to MORELIA, 155 kilometres, or 96 miles.

The track from *Maravatio* to *Acambaro* was finished in February, 1883. The distance is 63 kilometres. The line of the railway is several miles to the eastward of the old diligence-road. The stations are, *Zirizicuaro* (22·34 kilometres), *Tarandácuao* (31·34 kilometres), *San José* (41·34 kilometres), and *Acambaro* (63 kilometres). The region traversed by the route is not much cultivated, and there are only three hamlets along the line. Basaltic rock covers the country, and there is but little vegetation besides the *nopal, huisachi, mesquite,* and *pirú* trees. Much wheat and Indian corn could be produced here, but at present very little is grown. The train reaches *Acambaro* in about three hours.

ACAMBARO.

Elevation, 6,084 feet at the railroad-junction; population, about 8,000.
HOTEL.—*Nacional*, one block from the *plaza*.

The town lies in a broad valley, and is destined to increase in population as soon as the two branches of the Mexican National Railway are finished. One branch extends northward to *Celaya, via Salvatierra,* a distance of 42½ miles, and thence *via San Luis Potosí* and *Monterey* to the frontier; the other runs to *Morelia,* 57 miles distant, and thence to *Pátzcuaro* and *Manzanillo* on the Pacific. The branch to *Celaya* was completed in July, 1883. If the tourist does not wish to travel farther westward, he can take the train to *Celaya,* which is on the line of the Mexican Central Railway, and return to the capital by the latter road, thus making a round trip from *Mexico* that will give him an excellent idea of the agricultural and mineral resources of the region traversed by the two principal American trunk lines. The division of the National Railway to *Morelia* was opened on September 12, 1883.

Leaving *Acambaro,* the road trends over the plain to the south, and then goes southwestward for several miles, when the picturesque Lake of *Cuitzeo* is seen. The level of this lake is 6,021 feet, or 63 feet lower than *Acambaro.* Lake *Cuitzeo* is about 18-miles long, and affords good fishing. There are several islets in the lake, and it is surrounded by low hills. The stations are *Summit Siding* (14 kilometres), *Andocutin* (31·50 kilometres), *Huingo* (38·50 kilometres), *Querendaro* (49 kilometres), *Quirio* (63 kilometres), *Charo* (74 kilometres), *La Goleta* (76 kilometres), *Atapaneo* (80 kilometres), and *Morelia* (92 kilometres).

MORELIA.

Population, about 20,400. Elevation, 6,202 feet.
HOTELS.—*Soledad* and *Diligencias.*
BATHS.—*Del Recreo,* and in the Hotel *Soledad.*

The city lies in a basin. It is the capital of the State of *Michoacan,* is well built, and has clean streets. There is not much wealth in *Morelia,* but a large number of the inhabitants are well-to-do. At the present time a few buildings are in course of erection, especially the College of *San José,* with an ornamental façade. Many of the houses are built of a pinkish trachyte, which is brought from a quarry about a mile from the city. This stone, however, does not weather well, and, after exposure to the atmosphere for a few years, the buildings made of it appear to be quite old. Most of the dwelling-houses are of one story, while, on the main street and near the *plaza,* many of the shops are in buildings having two and sometimes three stories.

PLACES OF INTEREST.—1. The Cathedral (well worth seeing). 2. The Palace. 3. The *Paseo.* 4. Several of the churches may be visited to advantage, if the tourist is not pressed for time.

The Cathedral occupies an entire block, and is built in the Spanish renaissance style. The wood-work of the choir

(*coro*) is finely carved. Formerly the passage-way from the choir to the high altar was inclosed with a silver railing, but during the revolution the Liberals entered the edifice and confiscated the precious metal. The silver doors on the tabernacles of the side chapels still remain. The fonts are of Mexican onyx, brought from *Puebla,* three hundred miles distant. It is said that the Cathedral received upward of $4,000,000 from the owners of mines in the neighborhood (at *Ozumatlan*), between the years 1758 and 1858. The inhabitants of *Morelia* worship the outside as well as the inside of the Cathedral, and it is customary for men to remove their hats while passing it. The stranger renders himself liable to insult if he fails to observe this usage. A Mexican peasant will often kneel in passing this holy of holies. In *Morelia,* as in some other cities, the people generally bow to the priest, or *padre,* whether they know him or not. When the priest wishes to administer the last rites of the Church to a person *in articulo mortis,* he repairs to the house in a close carriage, drawn by two white mules. It is usual to kneel in the streets while this carriage is passing, and the tourist will give great offense to the by-standers if he does not conform to this practice. Before the overthrow of the clerical party, the host was borne through the streets by a sort of procession, arranged as follows: First, a man with a bell; then the coach containing the sacrament, or *estufa;* then six attendants on each side of it, carrying large lanterns or torches; and three soldiers in the rear.

Protestants have often been mobbed or arrested, and in a few cases killed, for refusing to kneel on the approach of the host. The late Bishop Haven relates that, in the year 1824, in the City of Mexico, an American shoemaker was at work on his bench, near the doorway, on the first floor of a house. Presently the bell announced the coming of the priest bearing the host. A Mexican stepped into this doorway, and, kneeling on the floor, turned to see if the shoemaker was

following his example. The cobbler had dropped his tools, and was kneeling on the top of his *bench*, when the zealous Catholic requested that he should get down and kneel on the *floor*. The American refused to do so, whereupon the Mexican drew his knife and inflicted a mortal wound on him. The news spread rapidly through the city, and it was only at the risk of the life of an American clergyman living in the capital that the murdered man received a Christian burial. Travelers should remember that *Morelia* has always been a stronghold of the priesthood, and that, although the power of the Church is gone in most of the States, it still holds its own in *Michoacan*.

The Palace next demands our attention. It is a well-built and commodious edifice of two stories, and contains the offices of the State Government and the custom-house. The governmental printing-office is also in the Palace. A large room on the second story contains the State Library, which is composed of many rare and old volumes, taken from the convents and monasteries during revolutions. Some of the books are written on the canon law in Latin, and bound in the most costly style. The front part of the second story of this building consists of the Governor's office, and the reception-room, or *Sala de Reunion*. The latter apartment is furnished with ornamental black-walnut sofas and chairs, covered with silk, and which were made in *Morelia*.

In the Hall of Congress, or *Sala del Congreso*, on the first floor of the Palace, there is a statue of *Hidalgo*, the Mexican Washington, and a portrait of the liberator, *Ocampo*, speaking in the national palace at the capital. *Ocampo* was one of the leaders of the anti-clerical party, and rendered such gallant service to the State of *Michoacan* during the revolution that the inhabitants named the State after him, so that its full name is *Michoacan de Ocampo*.

After the tourist has visited the principal buildings, a

walk to the *Paseo* will be found interesting. Large ash-trees (*fresnos*) grow here, and the gardens are well laid out and planted with flowers. We may add that there are fine cedars and cypress-trees in the yard of the *Carmen* Church, on the north side of the city.

The traveler may rest a few days in *Morelia* to advantage. The time may be passed in visiting the other buildings not already mentioned—such as the municipal palace; the cemetery, or *campo santo*, inclosed with high *adobe* walls; the smaller churches and vacant convents; the cotton-factory; or some of the colleges and schools.

The climate of *Morelia* is salubrious. The water is, however, muddy, and must be passed through large stone filters before it can be used.

Morelia was founded on the 23d of April, 1541, by provision of the viceroy, Antonio de Mendoza. During the Spanish domination it received the name of *Valladolid*, in honor of the Viceroy Mendoza, whose birthplace in Spain bore that name. In 1828 the Legislature of *Michoacan* enacted that the city should be called *Morelia*, in memory of José Maria Morelos, a hero of the War of Independence, who was born in this place.

Many excursions can be made from *Morelia*, especially to the mining districts lying to the east and southeast. *Chapatuato* is sixty miles by trail. Gold is found in a fissure-vein, associated with galena, pyrites, and antimonial ores. The country rock is slate. *Ozumatlan* is thirty miles distant. Here gold occurs in trachyte. *Sinda* lies at about the same distance from *Morelia*, and its minerals are similar to those just mentioned. In the autumn of 1880 a company was formed in New York to develop these mining regions. It was known as the Michoacan Syndicate. Mining engineers were sent to Mexico from New York, and a favorable report was published, from which the above particulars are taken. Labor is abundant

here, at prices ranging from three to four *reales* a day. It is believed that the completion of the railroad to *Morelia* will be of great benefit to these mines, which are now owned largely by residents of this city, who have not sufficient capital to work them, and are willing to sell at a fair valuation. It may be remarked that *Michoacan* still contains an immense amount of undeveloped mineral wealth. Besides gold and silver, copper and iron are abundant.

An excursion may also be taken to *Zintzuntzan,* about twenty miles distant. This town was the seat of the court of the ancient kings of *Michoacan;* it had a population of 40,000. To-day its edifices are destroyed, its streets deserted, and its few inhabitants are extremely ignorant. In the environs many mounds exist that are said to conceal the ancient palaces of the kings of *Michoacan.* There are also many buildings in which precious antiquities would be found if these hills should be excavated and examined. A great deal of pottery is now made here.

The cities of *Zamora, La Barca,* and *La Piedad,* and the brown-coal deposits of *Xiquilpan,* may be reached from *Morelia* by horse-roads. In closing the chapter on *Morelia,* it may be said that, at present, but two foreign corporations are carrying on mining and smelting operations in the vicinity—one English and one American. The State Government is trying to increase the cultivation of the silkworm and of cotton, and it is hardly necessary to add that *Michoacan* affords excellent opportunities for investment to foreigners having *some capital.*

4. From Morelia to Pátzcuaro, and thence to Manzanillo.

There are two lines of diligences from *Morelia* to *Pátzcuaro,* running three times a week. The fare is $2 for each passenger. The distance is forty miles, and the trip requires eight hours. The scenery along the route is pictur-

esque; but, unfortunately, the road is one of the very roughest in Mexico. A part of it is paved with basaltic bowlders, on account of the frequent rains in the neighborhood. Leaving *Morelia*, the diligence travels up-hill for about ten miles, until the summit of a low divide is reached. Then the road descends to a small village, where the mules are changed. Proceeding farther, the tourist enters a valley, with lofty and densely timbered ridges, or *sierras*, on either side. A few extinct volcanoes are seen, and the prevailing rock is blue amygdaloidal basalt. The worst part of the road has now been passed, and soon the stage-coach stops, to change animals for the last time. There is very little vegetation along this route. Traveling over an ascending grade for several miles, the observer obtains a view of the eastern end of the beautiful Lake of *Pátzcuaro*. In half an hour the driver halts in front of the *Hotel Diligencias*.

PÁTZCUARO.

Population, about 8,000.

Elevation, 6,717 feet, according to the surveys of the Mexican National Railway engineers. We may state that the line of this railroad has been graded to within a few rods of the town; but the officers of the company have as yet made no announcement of the time when this branch of the road will be completed. Alexander von Humboldt visited this region in 1803, and computed the elevation of this town to be about 500 feet higher than that above given, according to barometric measurement. The word "Pátzcuaro" means a *place of pleasure* in the Indian language. The houses are mostly of one story. The streets are narrow and winding, but the *plazas* are ample, and often filled with fruit-venders. This city was formerly a resort of the ancient kings of *Michoacan*, and after the Conquest it became the capital of the province.

There is a large Indian population here, who speak the

Tarasc dialect, especially on the lake, which is two and a half miles from the town.

The picturesque Lake of *Pátzcuaro* is about thirty miles in circumference. Its shape is irregular, the greatest length being about thirteen miles from northeast to southwest. There are five small islands in the lake, bearing the names of *Xanicho, Pacanda, Xaracuaro, Yuguan,* and *Tecuen.* The first one is inhabited. The view from the hills near the town, of the lake surrounded by densely timbered mountains, and with the surface dotted by islets, and the white houses on the side of *Xanicho,* is beautiful beyond description. It reminds the traveler of the famous *Lago Maggiore.* Among other writers who have remarked upon the beauty of the landscape are Madame Calderon de la Barca and Baron von Humboldt. A recent English author of a book on Mexico states, that the former has published to the world the most entertaining work ever written on the land of the Aztecs.

The Indians living on the Lake of *Pátzcuaro* very closely resemble the *Pueblos* of New Mexico and Arizona. The tourist can visit the islands in one of their "dug-out" pine canoes (*canoas*). Paddles with *circular* blades are used in the canoes by both women and men.

Perhaps no spot in the country deserves the name of "primitive Mexico" better than Lake *Pátzcuaro.*

Several excursions may be made from *Pátzcuaro.* The most convenient one is to *Uruapan,* forty-seven miles by trail to the southwest. There are two small hotels and a cotton-factory in *Uruapan.* The cotton is of excellent quality, and is brought from the west (*Acapulco*) coast by pack-mules. Much pottery is made here, and the town lies in the midst of a coffee and sugar growing district. The coffee of *Michoacan* is generally considered to be the best in Mexico, with the single exception of that from *Colima.* An *arroba* of coffee (25 pounds) costs $3 at *Urua-*

pan, and at *Pátzcuaro* it is worth 30 *reales.* These figures will give the traveler an idea of the great expense of transportation by mule-back; *i. e.,* the price for carrying coffee in sacks forty-seven miles is at the rate of *three cents* a pound! There is a cascade near the town worthy of a visit.

Besides sugar-cane and coffee, Peruvian bark (*quina*) and many medicinal plants, as well as an infinite variety of fruits, are grown in the environs of *Uruapan.* Twenty thousand barrels of native rum (*aguardiente*) are made annually in the district of *Uruapan.* The word "Uruapan" comes from *Urani,* which means in the Tarasc language "a chocolate-cup" (*jicara*), because the Indians in this region devote themselves to the manufacture and painting of these objects, in which industry they have thus far excelled.

The line of railroad from *Pátzcuaro via Uruapan* to *Colima* has been surveyed, but it will doubtless be many years before it is completed.

The tourist can visit *Tancitaro,* 40 miles from *Uruapan,* and, if he wishes, travel all the way to the Pacific coast. It will be advisable to purchase a horse if the traveler intends going beyond *Uruapan.* A good animal can be bought for about $40, and one able to accomplish the trip to *Colima* could be had for $25. The climate of *Tancitaro* is cool, the town being situated at the base of a peak of the same name, having an altitude of 11,037 feet. There are many gardens of pears, peaches, and apples in the vicinity. A horse-road leads from *Tancitaro* to *Colima,* a distance of about 100 miles. The latter place is celebrated for producing the finest coffee in the Republic. It is pronounced to be equal to the best Mocha. The berry is of small size. The State of *Colima* yields annually about 1,980,000 pounds of coffee, valued at $225,000. Some of it is exported to Germany. Cotton, rice, sugar-cane, and indigo are also cultivated in this State.

The city of *Colima,* situated on the river of the same

name, has a population of 32,000 souls, which is equal to half the number of inhabitants of the entire State. There are some French, German, and English settlers. The volcano of *Colima*, 11,140 feet high, lies near the city. It is snow-clad in winter, but the summer sun melts the white covering. This peak is conspicuously seen far out to sea, being only 25 miles from the coast. A wagon-road goes from *Colima* to *Manzanillo*, about 70 miles distant. The latter



The City of Colima.

town is the terminus of the western branch of the Mexican National Railway. The distance from the national capital is 615 miles. The Pacific Mail steamers touch at *Manzanillo* once a month. *Manzanillo* is 1,685 miles from *San Francisco*, Cal., and 1,742 miles from *Panama*.

It may be remarked that the Hon. William H. Seward landed at *Manzanillo* in 1869, and traveled into the interior *via Colima* and *Guadalajara*. He received a most enthusiastic reception.

The usual plan of building railways in Mexico, *i. e.*, to begin at both ends, and work toward an intermediate point, has been adopted by the Mexican National Railway Company, and on October 1, 1883, about thirty miles of track had been laid from *Manzanillo* to *Colima.* The distance between the two towns *via Armeria* is 60 miles *by rail.*

Leaving *Colima,* the Mexican National line makes a great bend to the northeast, curves around the northern side of *Lake Chapala,* and then runs southeasterly to *Morelia via Zamora.*

The railroad from *Manzanillo* to *Morelia* will be about 330 miles long. (See chapter on railways in Part First.)

The climate of *Manzanillo* is unhealthy for Europeans, and the tourist is advised not to linger long in the vicinity.

5. From PÁTZCUARO *via* Ario to JORULLO; * distance, 55 miles by horse-road.

This is a rough trip, owing to the absence of wagon-roads and hotels along the route. It has charms, however, especially to the geologist and lover of natural scenery; and the traveler will be amply repaid for the four or five days of comparative hardship necessary for the journey.

Tourists should hire saddle-horses in *Pátzcuaro.* If there are two or three in the party, it will be expedient to take a man-servant or *mozo.* Three horses and a *mozo* can be obtained at the rate of $4 daily, and the price of stabling. The cost of feeding each horse will be about one *real* a day. If the traveler wishes to go alone, and is able to talk in Spanish, a *mozo* will be *unnecessary,* although useful.

Leaving the quaint town of *Pátzcuaro,* the road ascends for about two miles, when a densely-wooded plateau is reached. This route, formerly practicable for wagons, is well paved with stone on the heavy grades, and passes

* Pronounced *hoar-rool-yo.*

through a region where considerable wheat, maize, and barley are cultivated. On reaching the top of the hill, the observer may obtain a magnificent view of the Lake of *Pátzcuaro,* with the vast rolling country beyond. The hamlet of *Santa Clara* is soon reached. There are copper-smelting works here, charcoal being used for fuel. The ore is brought in leathern sacks on mule-back from *Churumuco*



Manzanillo Bay.

and *Inguaran,* about 65 miles distant. It is worth from $10 to $20 per *carga* (300 pounds). Proceeding farther, the traveler will traverse a well-timbered district. Stately ash-trees line the streets of one of the villages, and the forests in the neighborhood contain fine spruces and pines. A French settler is about to erect a steam saw-mill here. A great deal of freight is carried along this route. One

meets many pack-trains of mules coming chiefly from *Acapulco*, which is 290 miles from *Pátzcuaro*. A train is usually composed of forty mules with five men who act as packers, or *cargadores*. A day's journey is sixteen miles. Mules are worth from $35 to $40 in this part of Mexico, and an *aparejo*, or leathern pack-saddle, costs $5.

The men who accompany the pack-trains usually ride horses, and are armed with the largest size of revolvers. Most of the freight goes northward. It consists largely of the cotton that grows in the State of *Guerrero*, and which is put up in bales of about 150 pounds each. A good mule will carry two bales all day.

Kegs of brandy, boxes of wine, small wares, and, of course, provisions and cooking utensils for the packers, are also carried by the mule-trains. On the return trip toward the Pacific coast, many of the animals go without a load, so that the tourist can secure transportation for himself and baggage if desirous of going to *Acapulco*.

As the traveler approaches *Ario*, a beautiful view is presented from a point about two miles from the town. The "Coast Range," or the southern part of the *Sierra Madre*, is visible, together with the broad plain at the base, the surface of which is dotted with numerous hillocks or *cerrillos*. The undulating contour of the table-land, which has just been crossed, can be traced for miles. The most prominent object in the landscape, however, is the lofty mountain to the southward, known as "*La Estancia de los Padres*," or the fathers' mansion. This picturesque hill is formed of two dome-shaped masses of rock rising from a common base. The slopes are very steep, and the summit appears to be inaccessible from the northern side. Humboldt sketched this mountain while in *Michoacan*, and a picture of it may be found in his collection of views of Mexico. The observer can also see substantially the same landscape from the *Alameda*, just outside of *Ario*, and

about fifteen minutes' walk from the *plaza*. It is best to go to the *Alameda* in the afternoon, just as the sun sinks behind the lofty *Sierra Madre*. The plain with its wavy surface appears like an inland sea, while the scattered hillocks resemble islets.

The road now enters *Ario*. The population amounts to 3,000, and the altitude is 6,358 feet, according to Hum-



A Pack-train.

boldt, or 866 feet lower than *Pâtzcuaro*, which is 31 miles distant. There are no hotels, but the town can boast of four *mesones*, that furnish accommodation for travelers and cattle or sheep.

The *Meson de Ocampo* is the best, although to assure a good night's rest the tourist should sprinkle flea-powder

over the sheets of his bed. The principal restaurant is the *Fonda de la Bella Union*, about half a block east of the *plaza*. The inhabitants of the town are very polite to strangers. Travelers should, if possible, procure letters of recommendation to residents in the neighboring villages which they intend to visit. The prefect of police will send an escort of soldiers to *Jorullo*, or any other place in his district, if asked. The expense of the escort will be nothing, but a small gratuity should be given to the sergeant in command. The environs of *Ario* are very fertile, and many excellent farms that produce rice, sugar-cane, pepper, fruit, etc., may be easily visited. Fine horses and cattle are also reared. The climate of *Ario* is temperate and very healthful. The town is, however, a sort of "jumping-off" place. The land on the south and southwest of *Ario* descends rapidly, and a few hours' journey brings one into the "hot country."

A Mexican writer has named it "the mouth of the *tierra caliente*." The inhabitants feel the want of a wagon-road that would facilitate transportation of the valuable staple products to the State of *Guerrero* or to some of the ports on the Pacific.

Excursions may be taken to *Tacambaro*, 20 miles to the eastward, or to *Uruapan* on the west. The former town produces much sugar and rum. The latter place has been described on page 217.

Leaving *Ario*, the road leads to *La Playa*, at the base of the famous volcano of *Jorullo*, about 24 miles distant. We notice several *haciendas*, and some groves of pine and oak along the route. The country is gently rolling for several leagues. After traversing a forest, the path becomes narrow and uneven. Suddenly it descends rapidly over rocky ground to a small *hacienda*.

The road is paved with cobble-stones for some distance, and the hamlet of *Tejamanil* is soon reached. The

tourist is now in the *tierra caliente.* The houses in the village are made of cane-stalks and thatched chiefly with palm-leaves ; but the principal building is of two stories, and built of *adobe,* with a roof of red tiles. There is a store in the latter, and a *fondita* adjoining. The accommodations here are primitive, but it is the best place for the traveler to stop at, unless he has letters to the governmental inspector of police, who lives at *La Playa,* three miles farther on.

There are fields of sugar-cane near by. Bananas and the indigo-plant also grow here. The main occupation of the natives is to collect palm-leaves from the adjoining *hacienda,* and cut them up in strips, taking the thin fibers for brooms, brushes, etc. The long strips of palm are folded over and packed together with tight cords. They are made into bundles about five feet long and a foot and a half in diameter, and carried to *Ario* on the backs of men and donkeys. It should be said that there are many porters in this section of the country. They transport mostly pottery and dressed palm-leaves, and travel about twenty miles daily with a load in this warm climate. The author saw a porter without a load walk thirty-one miles in seven and a half hours. He kept up with the writer's horse for the greater part of the distance. There is a native sugar-mill near *Tejamanil,* where the cane is put in a sort of hopper, and then passed through wooden rollers. The power is furnished by a yoke of oxen attached to a long shaft as in a horse-whim.

The road descends all the way to the hamlet of *Puerta de la Playa,* containing about a dozen huts, besides the house and store of the inspector of police, Don Francisco de Vega. Indigo (*añil*) grows in the river-bottom behind Señor Vega's residence. It is a wild bush about four feet high, and has a thin bark. The leaf resembles a fern. The Indians prepare it for the market by pounding the

seeds with a huge wooden hammer and extracting the juice. The climate of *La Playa* is dry and very hot. The thermometer in the winter season reaches 90° Fahr. at midday. It is much warmer in summer. The soil consists of dark volcanic sand, and it is called *mal pais—i. e.*, bad country. The region abounds with dangerous insects, such as scorpions, spiders, etc. A few rattlesnakes are found here. The traveler is advised to shake out his boots in the morning, as insects and reptiles are apt to crawl into them during the night. Should he sleep in a Mexican hut, it will be expedient to keep on all clothing (including boots), on account of the vermin.

During the French invasion a battalion of soldiers, numbering about five hundred, marched down to this corner of the Republic. After camping in the plain for a few days they returned to *Ario*, fully satisfied that the natives had been impressed with the importance of these Gallic visitors.

The ultimate destination of the tourist, the well-known volcano of *Jorullo*, will now be described.

The trail up the mountain leaves the *Acapulco* road at *La Playa*.

The base of the cone of the volcano is about three miles distant. Whether the traveler passes the night at *Tejamanil*, or at Señor Vega's residence, he should set out before daylight (say 4 A. M.), in order to reach the summit and return before the sun becomes too hot. One hour will be requisite to go from *Tejamanil* to *La Playa* in the dark. Leaving the main road, the path traverses a barren sandy plateau covered with bowlders of black scoriaceous basalt. Presently the grade ascends, and we pass through underbrush and groves of the *huisachi* and *tepejuaje* trees. Horses can be ridden to within half a mile of the crater. A Mexican peasant may be hired to act as guide for the sum of one dollar. He will take care of the tourist's horse, if no *mozo*

accompanies him, and point out the way to the summit, which can readily be ascended alone. About two hours will be necessary to arrive at the crater from the *Puerta de la Playa.* The scientific tourist will want to spend as much time on the volcano. A thermometer should be taken along to measure the temperature of the hot gases escaping from the *fumaroles.*

The general direction of the mountain-mass of *Jorullo* is north and south. The volcano is pear-shaped, the outlet of the crater being on the north side. The cone is covered with loose black ashes in which a few bushes grow, and its slope on the north and west sides is about forty-five degrees.

The crater is about a mile in circumference, and the diameter from north to south is estimated at 500 yards, the distance from east to west being a little less. The highest point is on the east side. According to Baron von Humboldt's measurements, the summit of this volcano is 4,267 feet above the level of the sea, or 1,683 feet above the "*Playas de Jorullo,*" which is probably the same place that now bears the name of *Puerta de la Playa,* often called simply *La Playa.*

Many clefts and *fumaroles* are found in the edge of the crater. The writer took the temperatures of some of them as follows: aqueous vapor escaping from the west side was found to be 132° Fahr., and sulphurous-acid gas in a *fumarole* at the mouth of the crater had a mean temperature of 130° Fahr., the column of mercury rising and falling a few degrees while the thermometer was exposed to the hot vapor. The traveler can make the circuit of the crater without difficulty.

Grass about four feet high, a few ferns, and *tepejuaje* and *changungo* (native trees), grow on the border. Deer are abundant on the mountain. There is an immense stream of lava on the north side, having a dark-red color, owing to the oxidation of the iron in the rock. It is com-

posed of scoriaceous basalt, and looks like the slag of a furnace.

The rocks of *Jorullo*, however, are neither uniform in texture nor composition. They vary in color from black and red to gray and grayish white. Bluish basalt containing olivine occurs near the bottom of the crater, and whitish-gray trachyte forms the greater part of it. The latter rock is traversed with a few small veins of sulphur.

The tourist may descend to the bottom of the mouth of the volcano, which is about 500 feet below the summit. The walls slant rapidly and are covered with an enormous mass of *talus*, containing many angular fragments of red and black rocks. Shocks of earthquake are often felt in the environs of *Jorullo*, extending sometimes as far as *Morelia*, 60 miles distant.

A recent earthquake (in March, 1883) was perceptible at *Ario* for the space of two minutes, and cracks were formed in the ground at a point ten miles off.

Although no eruption has taken place for upward of a hundred years, this volcano is still in a semi-active state, as shown by the heat of the crater-walls, the emission of sulphurous gas and aqueous vapor, and the frequency of earthquakes. Another stream of lava might flow out of *Jorullo* at any time.

The view from the summit next demands attention. It is very extensive. The eye follows the contour of the *Sierra Madre* to the westward for more than 100 miles, until the lofty volcano of *Colima*, capped with snow, bounds the horizon. The picturesque mountain, *La Estancia de los Padres*, is very conspicuous, and also the grassy plain in front of it, having a breadth of forty-five miles. On the south the country is much broken in outline, and to the eastward the observer may trace the undulating surface of the table-land. Looking northerly, one sees the sugar-cane fields and banana-groves near *Tejamanil*, whose bright verd-

ure forms a pleasant contrast to the greater part of the desert landscape. The tourist may also have an excellent view of the palm-tree *hacienda* in the valley, which yields an income of about $10,000 a year. It is the largest in *Michoacan.*

The descent from the cone of *Jorullo* is easy, and the *Puerta de la Playa* can be reached in about an hour, the path being mostly down-grade. The appearance of *Jorullo* from the valley is worthy of mention. If the observer has time to geologize, let him speculate upon the original size of the plain before the eruption of 1759. This volcano is the culminating point of a narrow ridge about six miles long, and running due north and south. There are other hills of igneous rock on the eastern and northeastern borders of the plain. The valley of *La Playa* is now about a mile wide and six miles long. A rough estimate would make the breadth of it about eight miles before the elevation of *Jorullo.*

Alexander von Humboldt explored this region in 1803, and wrote a lengthy account of the great volcano in his journal. It is also described both in the *Essai Politique sur la Nouvelle Espagne* and in the *Cosmos.* The following extracts are taken from Otté and Dallas's translation of the *Cosmos,* vol. v, pages 291–300 :

"In the series of Mexican volcanoes, . . . the most celebrated phenomenon is the elevation of the newly-produced Jorullo, and its effusion of lava. . . . The eruption in a broad and long-peaceful plain, in the former province of Michoacan, in the night from the 28th to the 29th of September, 1759, at a distance of more than 120 miles from any other volcano, was preceded for fully three months, namely, from the 29th of June in the same year, by an uninterrupted and subterranean noise. . . .

"The eruption of the new volcano, about three o'clock in the morning, was foretold the day before by a phenomenon which, in other eruptions, does not indicate their commencement, but their conclusion. At the point where the great volcano now stands there was formerly a thick wood of the Guayava. . . .

"Laborers from the sugar-cane fields (*cañaverales*) of the Hacienda de San Pedro Jorullo . . . had gone out to collect the fruit of the guayava. When they returned to the farm (*hacienda*) it was remarked with astonishment that their large straw hats were covered with volcanic ashes. Fissures had consequently already opened in what is now called the *Malpais*, probably at the foot of the high basaltic dome *El Cuiche*, which threw out ashes (*lapilli*) before any change appears to have occurred in the plain. . . .

"In the first hours of the night, the black ashes already lay a foot deep; every one fled toward the hill of Aguasarco, a small Indian village, situated 2,409 feet higher than the old plain of Jorullo.

"From this height (so runs the tradition) a large tract of land was seen in a state of fearful fiery eruption, and, 'in the midst of the flames (as those who witnessed the ascent of the mountain expressed themselves), there appeared, like a black castle (*castillo negro*), a great shapeless mass (*bulto grande*).'

"From the small population of the district (the cultivation of indigo and cotton was then but very little carried on), even the force of long-continued earthquakes cost no human lives, although, as I learn from manuscript record, houses were overturned by them near the copper-mines of Inguaran, in the small town of Pátzcuaro, in Santiago de Ario, and many miles farther, but not beyond San Pedro Churumucu. In the Hacienda de Jorullo, during the general nocturnal flight, they forgot to remove a deaf and dumb negro slave. A mulatto had the humanity to return and save him, while the house was still standing. It is still related that he was found kneeling, with a consecrated taper in his hand, before the picture of *Nuestra Señora de Guadalupe*.

"According to the tradition, widely and concordantly spread among the natives, the eruption during the first days consisted of great masses of rock, scoriæ, sand, and ashes, but always combined with an effusion of muddy water. In the memorable report already mentioned, of the 19th of October, 1759, the author of which was a man who, possessing an accurate knowledge of the locality, describes what had only just taken place, it is expressly said: '*Que espele el dicho. Volcan arena, ceniza y agua.*'

"All eye-witnesses relate . . . that, before the terrible mountain made its appearance, . . . the earthquakes and subterranean noises became more frequent; but, on the day of the eruption itself, the flat soil was seen to rise perpendicularly, . . . and the whole became more or less inflated, so that blisters (*vexigones*) appeared, of which the largest is now the volcano. . . .

"These inflated blisters of very various sizes, and partly of a tolerably regular conical form, subsequently burst . . . and threw boiling-hot earthy mud from their orifices, . . . as well as scoriaceous stony masses, . . .

which are still found, at an immense distance, covered with black, stony masses.

"These historical records, which we might, indeed, wish to see more complete, agree perfectly with what I learn from the mouths of the natives, fourteen years after the ascent of Antonio de Riaño.* To the questions whether 'the castle mountain' was seen to rise gradually for months or years, or whether it appeared from the very first as an elevated peak, no answer could be obtained.

"According to the tradition, the phenomena of small eruptions of water and mud, which were observed during the first days simultaneously with the incandescent scoriæ, are ascribed to the destruction of two brooks, which, springing on the western declivity of the mountain of Santa Ines, and consequently to the east of the *Cerro de Cuiche*, abundantly irrigated the cane-fields of the former Hacienda de San Pedro de Jorullo, and flowed onward far to the west to the Hacienda de la Presentacion. Near their origin, the point is still shown where they disappeared in a fissure, with their formerly cold waters, during the elevation of the eastern border of the *Malpais*. Running below the *hornitos*, they reappear, according to the general opinion of the people of the country, heated in two thermal springs. . . .

"In order to acquire a clear notion of the complicated outline and general form of the surface of the ground in which such remarkable upheavals have taken place, we must distinguish hypsometrically and morphologically:

"1. The position of the volcanic system of Jorullo in relation to the average level of the Mexican plateau. 2. The convexity of the *Malpais*, which is covered with thousands of *hornitos*. 3. The fissure upon which six large volcanic mountain-masses have arisen.

"On the western portion of the central Cordillera of Mexico, which strikes from south-southeast to north-northwest, the plain of the Playas de Jorullo, at an elevation of only 2,557 feet above the level of the Pacific, forms one of the horizontal mountain terraces which everywhere in the Cordilleras interrupt the line of inclination of the declivity, and consequently more or less impede the decrease of heat in the superposed strata of the atmosphere.

"On descending from the central plateau of Mexico (whose mean elevation is 7,460 feet) to the corn-fields of Valladolid de Michoacan, to the charming Lake of Pâtzcuaro with the inhabited islet Janicho, and into the meadows around Santiago de Ario, which Bonpland and I found adorned with the dahlias, which have since become so well known, we have not descended more than nine hundred or a thousand feet.

* In 1803.

"But in passing from Ario on the steep declivity over Aguasarco, into the level of the old plain of Jorullo, we diminish the absolute elevation in this short distance by from 3,850 to 4,250 feet. The roundish convex part of the upheaved plain is about 12,790 feet in diameter, so that its area is more than seven square miles. The true volcano of Jorullo and the five other mountains which rose simultaneously with it upon the same fissure, are so situated that only a small portion of the *Malpais* lies to the east of them.

"Toward the west, therefore, the number of *hornitos* is much larger; and when, in early morning, I issued from the Indian huts of the Playas de Jo-



Jorullo.

rullo or ascended a portion of the Cerro del Mirador, I saw the black volcano projecting very picturesquely above the innumerable white columns of smoke of the 'little ovens' (*hornitos*). Both the houses of the Playas and the basaltic hill Mirador are situated upon the level of the old non-volcanic, or, to speak

more cautiously, unupheaved soil. Its beautiful vegetation, in which a multitude of *salvias* bloom beneath the shade of a new species of fan-palm (*Corypha pumas*), and of a new alder (*Alnus Jorullensis*), contrasts with the desert, naked aspect of the *Malpais*.

"The comparison of the height of the barometer, at the point where the upheaval commences in the Playas, with that at the point immediately at the foot of the volcano, gives 473 feet of relative perpendicular elevation. The house that we inhabited stood only about 500 toises (3,197 feet) from the border of the *Malpais*. At that place there was a small perpendicular precipice of scarcely twelve feet high, from which the heated water of the brook (Rio de San Pedro) falls down.

"The portion of the inner structure of the soil, which I could examine at the precipice, showed black, horizontal, loamy strata, mixed with sand (*lapilli*). At other points which I did not see, Burkart has observed 'on the perpendicular boundary of the upheaved soil where the ascent of this is difficult, a light gray and not very dense (weathered) basalt, with numerous grains of olivine.'

"This accurate and experienced observer has, however, like myself, on the spot, conceived the idea of a vesicular upheaval of the surface effected by elastic vapors, in opposition to the opinion of celebrated geognosists, who ascribe the convexity, which I ascertain by direct measurement, solely to the greater effusion of lava at the foot of the volcano.

"The many thousand small eruptive cones (properly rather of a roundish or somewhat elongated oven-like form), which cover the upheaved surface pretty uniformly, are on the average four to nine feet in height. They have risen almost exclusively on the western side of the great volcano, as, indeed, the eastern part toward the *Cerro de Cuiche* scarcely constitutes one twenty-fifth of the entire area of the vesicular elevation of the Playas.

"Each of the numerous *hornitos* is composed of weathered basaltic spheres, with fragments separated like concentric shells; I was frequently able to count from twenty-four to twenty-eight such shells. The balls are flattened into a somewhat spheroidal form, and are usually fifteen to eighteen inches in diameter, but vary from one to three feet. The black basaltic mass is penetrated by hot vapors and broken up into an earthy form, although the nucleus is of greater density; while the shells, when detached, exhibit yellow spots of oxide of iron. Even the soft, loamy mass which unites the balls is, singularly enough, divided into curved lamellæ, which wind through all the interstices of the balls.

"At the first glance I asked myself whether the whole, instead of weathered basaltic spheroids, containing but little olivine, did not perhaps present masses disturbed in the course of their formation. But in opposi-

tion to this we have the analogy of the hills of globular basalt, mixed with layers of clay and marl, which are found, often of very small dimensions, in the central chain of Bohemia, sometimes isolated and sometimes crowning long basaltic ridges at both extremities.

"Some of the *hornitos* are so much broken up, or have such large internal cavities, that mules, when compelled to place their fore-feet upon the flatter ones, sink in deeply, while in similar experiments which I made the hills constructed by the termites resisted. In the basaltic mass of the *hornitos* I found no immersed scoriæ, or fragments of old rocks which had been penetrated, as in the case of the lavas of the great Jorullo. The appellation *hornos* or *hornitos* is especially justified by the circumstance that in each of them (I speak of the period when I traveled over the Playas de Jorullo and wrote my journal, 18th of September, 1803) the columns of smoke break out, not from the summit, but laterally.

"In the year 1780, cigars might still be lighted, when they were fastened to a stick and pushed into a depth of two or three inches; in some places the air was at that time so much heated in the vicinity of the *hornitos*, that it was necessary to turn away from one's proposed course.

"Notwithstanding the refrigeration which, according to the universal testimony of the Indians, the district had undergone within twenty years, I found the temperature in the fissures of the *hornitos* to range between 199° and 203°; and, at a distance of twenty feet from some hills, the temperature of the air was still 108·5° and 116·2° at a point where no vapors reached me, the true temperature of the atmosphere of the Playas being at the same time scarcely 77°.

"The weak sulphuric vapors decolorized strips of test-paper, and rose visibly for some hours after sunrise, to a height of fully sixty feet.

"The view of the columns of smoke was most remarkable early in a cool morning. Toward midday, and even after eleven o'clock, they had become very low and very visible only from their immediate vicinity. In the interior of many of the *hornitos* we heard a rushing sound, like the fall of water. The small basaltic *hornitos* are, as already remarked, easily destructible. When Burkart visited the *Malpais* twenty-four years after me, he found that none of the *hornitos* were still smoking, their temperature being in most cases the same as that of the surrounding air, while many of them had lost all regularity of form by heavy rains and meteoric influences. Near the principal volcano, Burkart found small cones, which were composed of a brownish-red conglomerate, of rounded or angular fragments of lava, and only loosely coherent.

"In the midst of the upheaved area covered with *hornitos*, there is still to be seen a remnant of the old elevation on which the buildings of the

farm of San Pedro rested. The hill, which I have indicated in my plan, forms a ridge directed east and west, and its preservation at the foot of the great volcano is most astonishing. Only a part of it is covered with dense sand (burned *lapilli*). The projecting basaltic rock grown over with ancient trunks of *Ficus Indica* and *Psidium*, is certainly, like that of the Cerro del Mirador and the high mountain-masses which bound the plain to the eastward, to be regarded as having existed before the catastrophe." *

Referring to the eruption of the volcano, Humboldt remarks that the natives ascribe these wonderful changes in the earth's surface to the work of the monks. At the *Playas de Jorullo*, the Indian, whose hut the German traveler occupied, told him that in 1759 the Capuchins belonging to the mission preached at *San Pedro*, but failed to receive hospitable treatment. Accordingly, they pronounced anathemas upon this beautiful and fertile plain, predicting that first of all the houses would be destroyed by flames, which would issue from the earth, and that afterward the surrounding air would cool to such a degree that the neighboring mountains would remain eternally covered with snow and ice. The former of these maledictions having been verified, the lower class of Indians already see in the gradual cooling of the volcano the presage of a perpetual winter.

Should the tourist wish to visit the *hornitos* that have just been described, it may be said that they are about 12 miles from *Puerta de la Playa*. There is no hamlet in the vicinity. The famous copper-mines of *San Pedro de Jorullo* are about 15 miles distant. These ore deposits were worked before the Conquest, and consist of the sulphides and oxides of copper. Several tunnels have been driven into the side of the mountain about 2,000 feet above the adjacent plain. There is from 25 to 60 per cent of metal in the copper pyrites; and from 80 to 100 *arrobas* of ore are extracted monthly, and carried by mules to *Santa Clara* (see p. 221).

* The author has italicized all Spanish words in the above extract.

The mining district of *Coalcoman* lies about 60 miles west of *Jorullo*. There are many mines of gold, silver, copper, and lead here. The deposits of iron are also said to be as extensive as those of the famous *Cerro del Mercado* in Durango. This circumstance, together with the proximity of the district to the Pacific Ocean, gives reason to believe that, upon the opening of some of the ports on the coast, and the development of the various mines, *Coalcoman* will become the center of wealth and commerce of the State of *Michoacan*. From *Puerta de la Playa* the traveler may continue the journey southward, crossing the *Zacatula* River to *Acapulco*, 235 miles distant. The greater part of the road follows the outline of the Pacific coast. The river can be forded in the dry seasons, but rafts must be used during the heavy rains of summer. The climate of *Acapulco* is very hot and unhealthy. The town lies on a narrow strip of land, less than half a mile in width, on which there is but little soil. It is surrounded by lofty granitic mountains, and has about 5,000 inhabitants. There are several hotels here. The harbor is the finest in Mexico. For many years *Vera Cruz* was the only other port from which goods were shipped to foreign countries. There was formerly considerable commerce between *Acapulco* and the Philippine Islands. The Pacific Mail steamships touch at *Acapulco* twice a month.

The distance from *Acapulco* to *San Francisco* is 1,836 miles, and the fare is (cabin) $100. The fare to *Panama* is the same, and the distance is 1,591 miles.

The terminus of the Morelos Railway will be at *Acapulco*. The town will probably become an important commercial center when the road is completed. At present the only object of interest to the tourist is the artificial cut in the mountain (*Abra de San Nicolas*), which has been excavated for the purpose of admitting the sea-breeze. The scenery of the landlocked harbor is picturesque.

Route II.

FROM THE CITY OF MEXICO TO LAREDO AND CORPUS CHRISTI.

1. *Mexico* to *Celaya.*
2. *Celaya* to *San Luis Potosí.*
3. *San Luis Potosí* to *Saltillo.*
4. *Saltillo* to *Monterey.*
5. *Monterey* to *Laredo.*
6. *Laredo* to *Corpus Christi.*

1. Mexico to Celaya, 219 miles.

(For description of this tour as far as *Acambaro,* and thence to *Celaya,* see Route I, pp. 202–210.)

2. From Celaya to San Luis Potosí.

Leaving the junction of this line with the Mexican Central Railroad at *Celaya,* the route will go northward to *San Luis Potosí,* about 120 miles distant. This division of the road will traverse a fine agricultural country.

On October 15, 1883, the main line had been constructed as far as *San Miguel de Allende,* 55·12 kilometres north of *Celaya.* The intermediate stations are *Molino del Soria* (15·03 kilometres) and *Chamacuero* (22·06 kilometres). The track is rapidly approaching *San Luis Potosí.* A daily stage-coach runs from this city to the temporary terminus.

SAN LUIS POTOSÍ.

Population, 35,000 in 1883; elevation, 6,150 feet.

Hotels.—*San Fernando, Del Progreso, San Carlos, San Luis, Americano.*

Baths of *San José,* in *Calle de Rayon,* at 3 and 4 *reales;* one of the finest bath-houses in Mexico.

Post-Office, about two blocks north of the baths.

English Bankers.—Pitman & Co., opposite the Cathedral.

San Luis, as it is generally called, is a fine city. It is the capital of the State of the same name. The streets are

laid out at right angles to each other, and are well paved. The houses are mostly of two stories. There are several public squares and a fine park. The city covers a large area. It lies in a broad and fertile plain, surrounded by lofty *sierras*. The climate is delightful, the thermometer rarely falling as low as the freezing-point.

PLACES OF INTEREST.—1. The Cathedral. 2. The Mint. 3. The City-Hall. 4. The Church of *El Carmen*. 5. The Church of *San Francisco*. 6. The Church of *San Agustin*. 7. The Church of *La Merced*. 8. The Church of *Guadalupe*. 9. The Chapels of *El Rosario* and *Los Remedios*. 10. The *Alameda*. 11. The *Plaza mayor*.

The cathedral contains a beautiful clock that strikes the hours. It is in the façade between the towers, and was sent as a present to the city from a King of Spain. The tourist should ascend one of the towers for a view of the environs. The entrance is on the *plaza*, just north of the principal door of the cathedral. There is a large monument erected in honor of the patriot Hidalgo in the center of the *plaza*.

A horse-car track has just been laid in the streets, and the electric light and telephones are already in use. An American capitalist has recently purchased a lot on the *Alameda*, with the intention of building a first-class hotel.

The citizens of *San Luis* are noted for their hospitality. Balls are given in the winter season, to which strangers may be invited through some merchant or banker. There is a large garrison here, and the military band plays in the *Plaza mayor* three times a week.

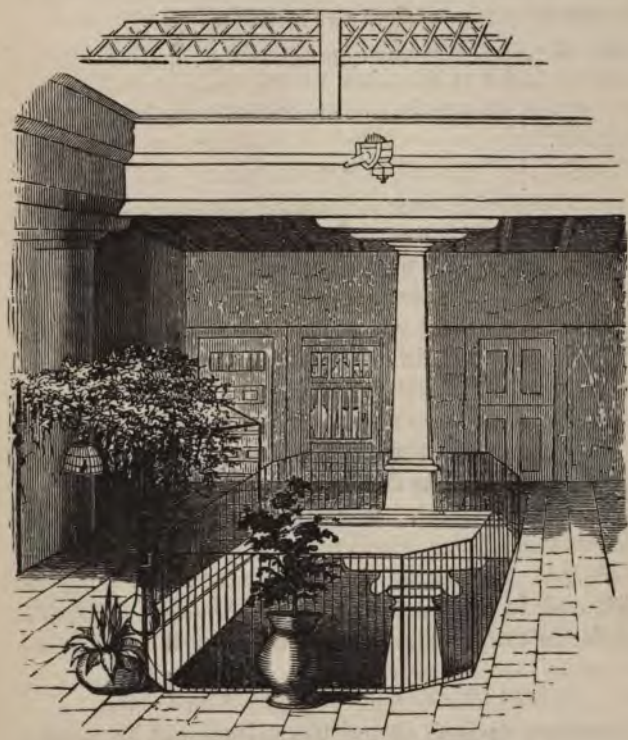
This city will soon become a great railway center.

The eastern division of the Mexican Central Railroad is being pushed forward from *Tampico* as rapidly as possible. At present 3,600 men are employed on this section of the line. It is expected that the road will reach *San Luis Potosí* on July 1, 1885. It will be carried westward toward the main line, making a junction probably at *Aguascalientes*. (For description of this railway, see Section V.)

A branch road of the Mexican National Railway is projected to *Zacatecas*. The distance is about 150 miles.

San Luis is now a central station for diligence-lines.

The proprietors of the *Diligencias Generales* run stage-



Interior of a Modern Mexican House.

coaches as follows: To *Querétaro*, 160 miles, fare, $10; to *Lagos*, 117 miles, fare, $10; to *Saltillo*, 331 miles, fare, $30; to *El Maiz*, 104 miles, fare, $10; to *Pinos*, 71 miles, fare, $8.

Connection with *Tampico* may be made at *El Maiz* by horseback, 104 miles to the *Rio Panuco,* then by steamer eastward to the railroad terminus. The site of *San Luis* is far preferable to that of Mexico. When the two American trunk-lines are finished, it is believed that the former city will soon become a rival of the latter in commercial importance. At present freight charges to *San Luis* are enormous—*e. g.*, a box of snuff, valued at $9 in New Orleans, will cost $50 delivered in *San Luis via Laredo,* including the duties.

Residents of this city are taxed heavily for the railroad toward *Tampico.* They pay three per cent of their annual income. An extensive trade in groceries, leather, shoes, saddlery, bagging, cassimeres, hats, and grain is carried on here. Fruit and the cereals grow in the environs. It is said that twenty bushels of Indian corn are produced to the acre.

This State is rich in minerals, although but few of the mines are worked at present, owing to lack of capital. The famous *San Pedro* mine is near the city. The pillars having been cut away, the roof of the mine has fallen in. Mining engineers state that there is still a large body of ore awaiting development. The biggest piece of native gold ever found in Mexico is said to have been taken out of the *San Pedro.* It was sent to the reigning King of Spain as a gift, and in return the Spanish sovereign presented a clock to the cathedral, which has already been described.

3. From San Luis Potosí to Saltillo; time, 4 days.

Leaving *San Luis Potosí,* the railroad will be continued northward through *Venado, Charcas,* and *Encarnacion,* to *Saltillo,* a distance of about 330 miles. The road will cross the great table-land, and the grading will be easy. The engineers report that the line just mentioned can be constructed in about the same time that has been necessary to lay the track between *Monterey* and *Saltillo.* At the

present time the stage-coach route from *San Luis* to the north passes through *Charcas, Matehuala, Cedral, La Ventura,* and *Saltillo;* thence by rail to *Laredo via Monterey.* The diligence starts daily from *San Luis* at 4 A. M.

The average distance traversed is about 82 miles a day. The taverns along the road are very inferior, and the tourist is advised to provide himself with beef-tea, canned goods, red wine, etc. The route from *San Luis Potosí* to *Saltillo* may be briefly described as follows: The road leads northward from the former city over the broad and level valley, in which *mesquite, maguey,* and *nopal* grow for many miles. The picturesque *sierra* bounds the plain on the east, while a rolling country is seen to the westward. The town of *Montezuma,* famous for its red wine, is passed on the way.

The first night is spent at *Charcas,* which has about the same elevation as *San Luis Potosí.* The *meson* is clean, and the water good. There is a telegraph here. The population numbers about 2,000, and the distance from *San Luis* is 91 miles.

Leaving *Charcas,* the road trends slightly to the northeast, and lies over a broad plain for several miles, when the mountains of *Catorce* come into view. The diligence stops at *Matehuala* for dinner. The hotel is tolerably well kept. This city has a population of 15,000, and contains many *haciendas de beneficios,* or silver-reducing works. There are also silver-mines in the vicinity.

Catorce is 13 miles distant. It has about 12,000 inhabitants, but *no hotel.* The population at one time reached 20,000. Some of the richest veins of silver in the Republic are found in the vicinity. They are owned chiefly by Spaniards and Englishmen. During the French invasion a mint was established here. The mines of *Catorce* have not paid well for the last few years; but it is said that some rich pockets of ore have been found very recently, while driving a tunnel, in one of the old Spanish claims.

The word "*catorce*" means fourteen. The town was named after a band of fourteen robbers, who were the terror of the neighborhood for many years.

On reaching *Matehuala*, the traveler enters a region abounding with blue limestone. The water is purgative, and should be drunk sparingly. The road continues over a level plain toward *Cedral*, about 13 miles farther. In places, the tourist may see solid stone fences, marking the boundaries of *haciendas*, or farms. These fences are often carried up to the summits of the adjacent ridges.

The soil is little cultivated between *Charcas* and *Cedral*. Irrigation is necessary, and there are no *acequias* or ditches. By taking advantage of the rainy season, however, more cereals could be grown. This portion of the great northern table-land, like the others, will always yield more in mineral than in agricultural products, unless water companies are organized, and tanks built in the ravines of the *sierras* for irrigation.

The second night is passed at *Cedral*, 78 miles from *Charcas*. The former town has about 4,000 inhabitants and two taverns. The *Diligencias* is the better. It has accommodation for eight passengers. There are several silver-reducing mills in *Cedral*. The ores come from *Catorce*, and contain sulphur. They are roasted, therefore, in a reverberatory furnace, before being crushed and amalgamated. The pyramidal mountain of *El Fraile* stands near the town. It may be ascended by a bridle-path to a point a short distance from the summit, and thence on foot.

Leaving *Cedral*, there is a good road to *La Ventura*, 81 miles distant, over a broad valley, bordered with *sierras* on either side. There is but little vegetation to be seen, other than the *huisachi*, *mesquite*, and shrub-palms. At *El Salado*, about 27 miles from *Cedral*, a stop is made for lunch. We are now on the eastern boundary of one of the largest estates in Mexico, the *Hacienda del Salado*. It lies

partly in the four States of *San Luis Potosí, Zacatécas, Nuevo Leon,* and *Coahuila.* There are 8,000 horses and 3,000 cattle on the farm. Wells and tanks are used for watering the stock, as no running streams exist here.

The next night is spent in *La Ventura,* at the ranch of General Treviño. This spot lies in a broad plain, surrounded by lofty ridges of mountains. There is a large pond in the rear of the farm-house, where the tourist can bathe. The "hotel" accommodation is very poor, and the traveler is warned to beware of fleas (*pulgas*).

Leaving *La Ventura,* where the elevation is 5,840 feet, the road continues level for several miles. The limestone rock still covers the country. Presently a long hill is ascended, and *Agua Nueva* is reached. Here the altitude is 6,380 feet. This is a fertile spot, and affords good water. It is about 20 miles from *Saltillo.* This part of the route is celebrated in Mexican history as being the scene of battles, both during the War of Independence as well as in the conflict with the United States. A few miles farther is the hamlet of *La Encantada,* having an elevation of 6,171 feet. General Taylor with his army encamped here before the battle of *Buena Vista.*

A wagon-road goes from this place to *Parras,** and the "laguna country" of *Coahuila.* The altitude of *Parras* is 4,986 feet, according to Wislizenus. Cotton, fruit, and the cereals grow in considerable quantities in the vicinity of *Parras.* The annual crop of the former staple amounts to 650,000 pounds. The yucca-tree is common in *Coahuila.* It grows to a height of thirty feet. Some species bear an edible fruit which resembles the banana. Proceeding farther, the traveler crosses the famous battle-field of *Buena Vista,* on a plateau about half a mile wide. Here, on February 22 and 23, 1847, the American army, under General Taylor, defeated the Mexicans, who were commanded by

* Parras is about 75 miles west of Saltillo.

Santa Anna. The forces of the latter outnumbered those of the former by about four to one.

The stage-road descends from *Buena Vista* nearly all the way to *Saltillo*, the first part of it being quite rough. The difference of elevation between the two points is almost



Yucca-tree.

a thousand feet. The jagged ridge of limestone on the eastern side of the route soon trends to the eastward, and extends as far as *Monterey*.

The tourist approaching *Saltillo* does not see it until within about 300 yards of the city. He may have, however, an extensive view of the valley in which this town

lies, as well as the picturesque *sierras* bounding it, from the plateau on the south.

After a continual descent, the houses come in sight, and the diligence rattles over the cobble-stone pavement of the streets to the hotel, stopping first at the post-office to deliver the mail. The city is 81 miles from *La Ventura.*

SALTILLO.

Population, 11,340; elevation, 5,204 feet.
HOTEL.—*San Esteban.*

There are a few *mesones.* The water for the city is brought from the mountains in a long aqueduct. *Saltillo* is the capital of the State of *Coahuila,* and is a very healthy place. It is well built, and contains an *Alameda* and several *plazas.* The parochial church on the *Plaza mayor* is worthy of a visit. There is a small garrison and a bull-ring here. A fort, which was built during the French occupation, stands on the hill behind the city. Several cotton-factories are found in the neighborhood, and a considerable trade in goat and sheep skins is carried on in *Saltillo.* This city is destined to become the emporium of Northeastern Mexico. A wagon-road leads to *Monclova,* 121 miles distant, and the Mexican International Railroad, starting from *Piedras Negras,* will probably have a branch line from *Monclova* to *Saltillo.* The Mexican National Railway began to run trains to the latter town about September 15, 1883.* The climate is temperate and dry. An American capitalist is about to erect a hotel, with all the modern conveniences. *Saltillo* is likely to become a resort for invalids. It has many advantages over Colorado, and the distance from New York or Philadelphia to either place is about the same.

* On October 15, 1883, the road-bed had been graded to *El Salado,* 86 miles south of *Saltillo.*

4. From SALTILLO to MONTEREY, 67·8 miles. Difference of elevation, 3,414 feet.

Leaving *Saltillo*, the railroad traverses a fertile valley, in which wheat, barley, and maize are cultivated. The views along the route are beautiful. The first station is *Capellania* (8 miles). Passing the hamlets of *Ojo Caliente* (18·4 miles) and *Los Muertos* (24·5 miles), we reach *Rinconada* (31·1 miles). Here the altitude is 3,316 feet, or 1,888 feet lower than *Saltillo*. There is a large ranch near the station. The track of the Mexican National Railway leaves the broad cañon near *Rinconada*. The grade now descends rapidly, and the scenery becomes magnificent. The walls of the valley are formed of steep, rocky ridges with serrated outlines. The next stop is made at *Garcia* (46·8 miles), elevation, 2,465 feet. The next station is *Santa Catarina* (59·8 miles). This village has a population of about 1,500. There is a great deal of *mesquite* and *nopal* growing in the vicinity. The famous *potrero* is about four miles distant. It is a pasture which is reached by a winding cañon intersecting the south side of the lofty and rocky *sierra*. The scenery is very picturesque. The limestone has been shaped into pinnacles, domes, and towers. In fact, it reminds the traveler of a miniature *Yosemite*. A very pleasant excursion from *Monterey* would be to take the morning train to *Santa Catarina*, visit the *potrero* on horseback or on foot, and return to the city by the evening train. The wagon-road passes Independence Hill, a few miles beyond *Santa Catarina*. It is an artificial mound about 150 feet high, with two wooden crosses on the summit, erected to the memory of the heroes who fell at the battle of *Monterey* in 1847. There was considerable fighting in this region during the Mexican War. Among other soldiers who fought here and have since become famous, may be mentioned General William T. Sherman, who was then a lieutenant in the United States Army.

We now pass the stations of *Leona* (61·5 miles) and *San Geronimo* (64·1 miles). Continuing the journey toward *Monterey*, the next place of interest is the Bishop's Palace, situated on a hill about 150 feet above the surrounding plain. A fort was built on this eminence, and occupied by the Mexicans during the war. After a short resistance, the



Scene on the Northern Plateau.

Americans caused it to surrender. At present the Bishop's Palace is used as a barracks. A company of artillery, with half a dozen guns, is stationed here. The city is four miles distant. A species of dwarf palm-tree, popularly called the dagger-plant, grows along the wagon-road.

The next stopping-place is *Gonzalitos* (66 miles), after which comes *Monterey* (67·8 miles).

MONTEREY.

Population, 40,000; elevation, 1,790 feet.
HOTELS.—*Iturbide, Monterey, Fonda Americana.*
BATHS.—*Del Refugio,* in the *Calle de Dr. Mier.*
CARRIAGES.—Four *reales* an hour.
POST-OFFICE, on the *plaza.*
TELEGRAPH-OFFICE, at the railway-station.
HORSE-CARS, from the *plaza* to the railway-station; fare, a *medio* (6¼ cents).

The city is the capital of the State of *Nuevo Leon,* and is situated on the *Rio de Santa Catarina,* in latitude 25° 40′ 6″ north, and longitude 0° 49′ west of Mexico. It lies in a broad plain, with the majestic Bishop's Mitre, or *Cerro de la Mitra,* on the west, and the unique Saddle-Mountain, or *Cerro de la Silla,* on the east. Both of these hills are formed almost entirely of solid rock. The latter is 4,149 feet and the former 3,618 feet above the level of the sea.

Monterey covers a great deal of ground. The houses are mostly of one story, except on the two public squares, where they have two stories.

PLACES OF INTEREST.—1. The Cathedral. 2. The Bishop's Palace (already described). 3. The New Bridge, or *Puente Nuevo.* 4. The Tank, *Ojo de Agua.* 5. The Chapel of *Guadalupe.*—6. The Market.

The bridge is famous as the scene of a battle between the Mexicans and Americans. The former defended it successfully against the onslaught of the latter. Zealous Catholics in *Monterey* say that the image of the Virgin, then on the bridge, assured the victory of their countrymen.

The tank is much used for washing clothes and for bathing. The stranger should ascend the hill known as the *Caido,* beyond the chapel of *Guadalupe* and due south of the city. A carriage may be driven to within a hundred yards of the summit, or it can easily be reached on horseback. The view is one of the most picturesque in the Republic, and affords an opportunity of studying the topography of *Monterey* and the neighboring battle-fields.

It reminds the traveler of *Salzburg*, and several other towns in the Tyrol. If the tourist intends remaining long in the city, he may ascend the Saddle-Mountain, or the Bishop's Mitre. A visit should be made to the *potrero* (described on page 246). Native work, such as fancy baskets, purses, bird-figures, etc., can be purchased at the jail, which is in the old convent of San Francisco.

Monterey has become more Americanized, perhaps, than any other Mexican town. The hotels are kept on the American plan; and merchants, lawyers, doctors, and den tists from the United States have established themselves here.

There are beautiful drives in the vicinity. The climate is dry and healthy, although very warm for half the year. *Monterey* is on the isothermal line that passes through the Canary Isles, and Canton, in China. The prevailing wind is from the southeast. The following temperatures were taken in 1865 by Dr. E. Gonzalez, and given to the author.

Mean temperature of the year	71°	Fahr.
Mean temperature of the winter	55°	"
Mean temperature of the summer	83°	"
Hottest month, July	84⅓°	"
Coldest month, January	51°	"
Maximum temperature, May 25th	107°	"
Minimum temperature, January 24th	32°	"

This city may become a resort for invalids, a few of whom passed the winter of 1883 here. The changes of temperature, however, are said to be more rapid than at *Saltillo*, and the climate of the latter town is certainly much cooler in summer.

5. From MONTEREY to LAREDO. Distance, 172 miles. Fares: $7.05, first class; $5.75, second class. Two passenger-trains daily.

Leaving *Monterey* station, which is about a mile and a half from the *plaza*, the road runs northward over the broad plain. The mountains surrounding the city present

a magnificent spectacle to the eye, and are seen to best advantage from the rear platform of the last car. As the train moves onward, they appear to fade out of sight like a dissolving view. Much coin and bullion are transported over this route. Sometimes $100,000 will be carried in the baggage-car of the train. Passing the hamlet of *Estancia* (6 miles), the next station is *Topo* (13 miles). Here the elevation is 1,590 feet, or 200 feet lower than *Monterey*.

The next stop is made at *Salinas* (21 miles), where the altitude is 1,432 feet. This town has about 4,000 inhabitants, and is situated on a river of the same name. The surrounding region is fertile, and produces fruit. The adjoining cañon contains silver-mines that are worked at the present time.

Leaving *Salinas*, the lofty *sierra* still bounds the plain on the west. The ridge-line is, however, somewhat lower than at *Monterey*, and it decreases in height on running northward, until it assumes the form of a *mesa*, or terrace.

Palo Blanco (43 miles) is the next station, and then the train stops at *Villaldama* (59 miles). A forest of palm-trees is passed on the way, and the country to the eastward continues level for many miles. The elevation of *Villaldama* is 1,412 feet, and it is named after Aldama, one of the heroes of the War of Independence. The town lies about a mile east of the railroad, and was formerly known as *Boca de los Leones*. The population numbers about 5,000, and it is chiefly descended from Spaniards. There are lead-mines in the vicinity, but they have been abandoned, owing to lack of capital. Leaving *Villaldama*, the next station is *Bustamante* (67 miles), where a stop of twenty minutes is made for dinner. The next station is *Golondrinos* (74 miles), where a stock-farm may be visited. Passing the hamlet of *Salome Botello* (83 miles), we reach *Lampazos* (96 miles), which has an elevation of 1,032 feet.

The latter town lies eastward of the track. Mexican blankets are manufactured here.

Opposite *Lampazos* is the *Mesa de los Cartuhanes*, a terrace rising about 2,000 feet above the plain. Its area is about 20 × 15 miles, and it is accessible from only one point. This plateau affords good water, grass, and timber. It was formerly used by Indians as a hiding-place. The *mesa* is owned by Patrick Milmo, Esq., an Irish settler, who married the daughter of an ex-Governor of Nuevo Leon. Mr. Milmo is also the proprietor of an immense amount of real estate in *Monterey* and the adjacent region.



Varieties of Cactus.

Leaving *Lampazos*, the train passes *Mojina* (109 miles) and *Rodriguez* (124 miles). Just before reaching the latter place the track makes a bend to the east. The elevation of *Rodriguez* is 651 feet. The country is now covered with *nopal*-bushes and *mesquite*. The mountain-ridge gradually subsides into the plain. We cross the *Salado* River, and reach *Huisachito* (135 miles), where the road-bed curves eastward. The next station is *Jarita* (148 miles). Here the altitude is 674 feet. The surrounding country is flat and uninteresting as far as the frontier. Passing *Sanchez* (150 miles), *New Laredo* (166 miles) is reached. The Mexican National Railway crosses the Mexican Southern just before reaching its station.

NEW LAREDO.

Population, about 6,000; elevation, 438 feet.
HOTEL.—*Rio Grande.*

This town was a part of old *Laredo,* on the opposite side of the river, before Texas was separated from Mexico. Communication has always been made by ferries, until the recent completion of the railroad-bridge. *New Laredo* will become an important city when the two American trunk-lines are finished. The Mexican National and the Mexican Southern Railway Companies have recently made arrangements to build jointly a substantial iron bridge across the *Rio Grande,* to replace the wooden trestle-work erected by the former company. The new bridge will be used by both roads. Leaving *New Laredo,* the train passes the station of *Rio Grande* (168 miles), and then crosses the river, which is about one quarter of a mile wide. The next stop is at *Mexico Junction* (169 miles). The track now makes a long bend to the northwest, and reaches *Laredo,* Texas (172 miles). Between the two *Laredos,* an express agent passes through the cars, and checks baggage to any part of the latter city. He also sells transfer tickets to the depot of the International and Great Northern Railroad, which runs to *San Antonio.* The customs inspector meets the train on arrival at the station of *Laredo,* and examines baggage on the platform without causing any unnecessary delay to the passengers. There is a dining-room adjoining the station, owned and controlled by the Mexican National Railway Company.

LAREDO.

Population, 6,000; elevation, 438 feet above the Gulf at *Corpus Christi.*
HOTELS.—*Wilson House, Laredo Hotel.*

Tickets are sold at *Laredo* to all parts of the United States. The distance to *San Antonio* is 153 miles, and the

time is 9½ hours. There is but one passenger-train daily. The tourist can go eastward from *San Antonio* to *Houston* and *New Orleans*, or westward toward *El Paso* and *California*. The distance from—

	Miles.
Laredo to the City of Mexico is	820
Laredo *via* Houston to New Orleans is	720
Laredo to St. Louis, Mo., *via* Texarkana is	1,084
Laredo to New York *via* St. Louis is	2,181
Laredo to New York *via* New Orleans is	2,398

8. From LAREDO to CORPUS CHRISTI, distance 161 miles. Time, 12½ hours. Two passenger-trains daily. Fare, $4.83, or three cents a mile.

The stations between Laredo and Corpus Christi are:

	Miles.		Miles.
Laredo	0	Sweden	85
Mexico Junction	3	Benavides	91
Pescadita	18	San Diego	108
Aguilares	30	Collins	121
Los Angeles	46	Banquete	136
Peña	61	Rogers	149
Realitos	75	Corpus Christi	161

Corpus Christi (St. James Hotel) is the terminus of the Texas-Mexican Railway, and is 981 miles from the City of Mexico.

The mean depth of water at high tide on the bar is about 10 feet, and a recent congressional appropriation has led to the improvement of the channel. When the Mexican National Railway is completed, it is expected that merchandise will be shipped from Europe and from the Eastern and Middle States to *Corpus Christi*, and be sent thence by rail direct to the Mexican capital. In this respect, the line will have an advantage over its rival, the Mexican Central.

(For additional information concerning the routes through Texas, see *Appletons' General Guide to the United States.*)

SECTION V.

The Mexican Central Railway (Ferrocarril Central Mexicano).

(Compare with the chapter on railways.)

Of the two branches of this road, the southern or principal one will be described first.

Route I.

FROM THE CITY OF MEXICO TO ZACATECAS.

1. *Mexico* to *Querétaro.*
2. *Querétaro* to *Guanajuato.*
3. *Guanajuato* to *Lagos.*
4. *Lagos* to *Guadalajara* and *San Blas.*
5. *Lagos* to *Zacatecas.*

1. From MEXICO to QUERÉTARO, 246 kilometres, or 152½ miles.

Leaving the railroad-station at *Buena Vista* (elevation, 7,347 feet), the line runs northward over the broad valley of Mexico. The first station is *Lecheria* (21 kilometres). The track of the Mexican National Railway runs parallel with this road for several miles. The grade is slightly ascending, *Lecheria* being 7,386 feet above the sea-level, or 39 feet above the City of Mexico. The snow-clad peaks of *Popocatepetl* and *Iztaccihuatl* remain in full view. We now stop at the hamlets of *Cuautitlan* (27 kilometres), *Teoloyucan* (36 kilometres), and *Huehuetoca* (47 kilometres).

Both of these American railroad companies have station-

houses at these three places, and the Mexican National Railway crosses the Mexican Central at *Huehuetoca.*

The elevation of this point is 7,533 feet above the sea-level, according to Humboldt, or about 140 feet higher than the measurement of the railway-engineers. In general, it may be said that the distinguished German traveler and scientist, in taking altitudes with his barometer throughout the country, computed the elevations of the various points at somewhat higher figures than those of the engineers of the several railroads. Wheat and maize are cultivated in the vicinity of *Huehuetoca.*

This village is famous in Mexican history as being the scene of one of the greatest hydraulic operations ever undertaken by man. Frequent inundations of the City of Mexico, in the latter part of the sixteenth century, convinced the Spaniards that the system of dikes was insufficient to protect the capital. It was decided that the artificial draining of the Lakes of *Tezcuco*, *Zumpango*, and *San Cristobal*, would be necessary.

Two intelligent men, Obregon and Arciniega, proposed to the Government that a gallery should be made through the hills of *Nochistongo*, to the north-northwest of *Huehuetoca.* This spot was perhaps the lowest in the mountains bounding the valley of Mexico on the north. In 1607 the Marquis de Salinas, then viceroy, employed Enrico Martinez to begin the stupendous work of building a tunnel through the hills to drain the Mexican lakes. It received the name of the *Desague* (canal) *de Huehuetoca.* Work on the famous gallery of *Nochistongo* was commenced on November 28, 1607. The viceroy, in the presence of the *audiencia*, applied the first pickaxe, and 15,000 Indians were given employment. After eleven months of continued labor, during which many hundreds of Indians perished from severe treatment, the tunnel (*el socabon*) was completed. Its length was more than four miles, its width eleven and a half feet, and its height fourteen feet.

The water flowed through the canal for the first time on September 17, 1608. In the following December the viceroy and Archbishop of Mexico were invited by Martinez to witness it running, from the Lake of *Zumpango* and the *Rio de Cuautitlan*, through the tunnel. The Viceroy Salinas is said to have ridden upward of a mile into this underground passage.

Scarcely had the water begun to flow from the valley of Mexico toward the Atlantic Ocean, when the canal was found to be too small. The loose earth surrounding the tunnel began to crumble, and it became necessary to support the roof, which was composed of alternate strata of marl and stiff

clay. At first wood was used, but afterward masonry was deemed preferable. The water, however, gradually undermined the lateral walls, and deposited a large quantity of earth and gravel on the bottom of the canal. Martinez built small sluices at intervals to clear the passage, to obviate these difficulties. This remedy, however, proved insufficient, and the gallery was stopped up by the constant falling in of earth.

From 1608 to 1614 various schemes for enlarging the canal were discussed. In the latter year the court of Madrid, wearied out by the disputes of the engineers, sent out Adrian Boot, a Dutchman of large experience in hydraulic architecture. He was in favor of the Indian system, and advised the construction of great dikes and mounds of earth around the capital. He was unable to bring about the relinquishment of the *Nochistongo* Canal till 1623. About this time a new viceroy (Guelves) arrived, who scouted the idea that the City of Mexico was in danger of floods.

He had the temerity to order the *desague* to be closed, and to make the water of the Lakes of *Zumpango* and *San Cristobal* return to the Lake of *Tezcuco*, that he might see whether the peril was, in fact, as great as it had been represented. The last lake soon swelled rapidly, and the foolish directions to the engineer Martinez were countermanded.

The latter now began his operations anew, and continued them till June 20, 1629. Heavy rains fell, and suddenly the capital became inundated to the height of a metre (3¼ feet). Martinez was committed to prison. Contrary to every expectation, Mexico remained flooded for five years, from 1629 to 1634! During this interval four different projects were presented and discussed by the Marquis de Ceralvo, the viceroy. The misery of the lower classes was singularly increased while the inundation lasted. Trade was at a stand, many houses tumbled down, and others were rendered uninhabitable. The waters, however, in 1634, receded, the ground in the valley having opened on account of violent and very frequent earthquakes.

The viceroy now set the engineer Martinez at liberty. He was ordered to finish the *desague*, by enlarging the original tunnel. The Government levied particular imposts on the consumption of commodities for the expense of these hydraulic operations.

In 1637 the Viceroy Villena put the entire work in charge of Father Luis Flores, of the Order of St. Francis. It was decided to abandon the tunnel (*socabon*), to remove the top of the vault, and to make an immense cut through the mountain, of which the old subterranean passage was to be merely the water-course.

The monks of St. Francis continued to retain direction of this work for about forty years, when Martin del Solis, a lawyer, obtained from the court of Madrid the administration of the *desague*. He proved to be in-



The Cut of Nochistongo.

competent to manage such a gigantic engineering scheme, and the passage was stopped up. The canal had been opened and walled in a few years, but it required two centuries' to complete the cut in a loose earth, in sections of from 262 to 328 feet in breadth, and from 131 to 164 feet in perpendicular depth. The work was neglected in years of drought, but renewed with extraordinary energy after a season of heavy rains.

In 1762 there were still at the northern extremity of the tunnel of Martinez 6,356 feet which had never been converted into an open trench (*tajo abierto*). At length, in 1767, the Flemish viceroy, the Marquis de Croix, undertook to finish the *desague*. The cut was enlarged, but, in fact, the great canal was never *entirely* completed. Millions had been expended, and the Government, hesitating between the Indian system of dikes and the modern scheme of a canal and open cut through the hill, never had the courage to adhere to the same plan.

The gallery was allowed to be choked up, because a wider and deeper one was required; and the cut of *Nochistongo* was not to be finished, while the officials were disputing about the project of the canal of *Tezcuco*, which was never executed.

In the beginning of the present century the entire length of the *desague* from south to north was 20,585 metres, or about 12¾ miles. This is reckoning from the sluice of *Vertideros*, about 2½ miles south of *Huehuetoca*, to *El Salto del Rio de Tula*.

For further particulars about this great canal, the reader is referred to Humboldt's *Political Essay on the Kingdom of New Spain*, Black's translation, vol. ii, pp. 75–112, from which the above abstract is taken. Humboldt also discusses the scheme of extending the canal from *El Salto* to *Tampico*, on the Gulf of Mexico. For many years this plan, although never undertaken, was considered practicable by the Mexicans.

It may be remarked that a canal of such length could be used for irrigation in the dry season, as well as for the transportation of merchandise by small craft. Of course a great many locks would be necessary, as the difference of level between *Huehuetoca* and *Tampico* is 7,400 feet. The tourist can obtain a hasty view of this great hydraulic work from the car-window, as the track is now laid through the cut (*tajo*) of *Nochistongo*. But, to examine the *desague*

properly, a stop should be made at *Huehuetoca* or *El Salto*, where a horse can be procured for the short journey. The traveler can leave Mexico in the morning by either road (*i. e.*, the Mexican Central or the Mexican National), inspect the ancient canal, and return in the afternoon train.

Leaving *Huehuetoca*, we pass *Kilometer* (53 kilometres), and the next station is *El Salto* (62 kilometres). Here the Mexican National Railway crosses the Mexican Central again.* (Elevation of *El Salto*, 7,131 feet.) Between *Huehuetoca* and *El Salto* the road runs northwest, but from the latter station to *San Antonio* the general course of the track is westerly.

The snow-clad volcanoes are no longer visible after leaving *Tula* (80 kilometres) (*Hotel Diligencias*). This town was once the great Toltec capital. Ruins are found on the Hill of Treasure (see p. 48). From this station, having an elevation of 6,658 feet, the up-grade becomes quite perceptible for a few miles. Much wheat and maize grow along the line, especially in the river-bottoms.

We now stop at *San Antonio* (93 kilometres; elevation, 7,216 feet). Trees of *nopal*, *pirú*, and *huisachi* are abundant in places where the land has not been cultivated. The general direction of the route is now west-northwest. The country is rolling, and good for stock-raising. Passing the stations of *Angeles* (112 kilometres), *Marqués* (122 kilometres), *Nopala* (130 kilometres), *Dañú* (138 kilometres), *Polotitlan* (151 kilometres), and *Cazaderó* (161 kilometres), the train describes a long curve, and reaches *San Juan del Rio* (191 kilometres). The highest point of the railroad is just east of *Marqués* station. Here the altitude is 8,134 feet, or 787 feet above the capital. Thence the grade is downward toward *Polotitlan*—elevation, 7,534 feet, and *San Juan del Rio*—6,300 feet.

* El Salto is 67·29 kilometres from Mexico, *via* the Mexican National Railway.

This latter town is situated in a broad and very fertile plain, where cereals are cultivated. Some of the best agricultural land in the Republic lies between here and *Leon*. The population of *San Juan del Rio* is about 12,000, and the streets are wide and well paved. It was formerly one of the largest woolen manufacturing cities in the country. The train stops thirty minutes at this place for breakfast. The restaurant is very well kept, and the eastward and westward passenger-trains usually meet here.

Ahorcado (216 kilometres) is the next station; elevation, 6,258 feet. The track now runs slightly downward over a productive region, passing the immense cotton-mills at *Hercules*, and reaches *Querétaro* (246 kilometres).

QUERÉTARO.

Population, 38,000 in 1882; elevation, 6,363 feet, according to Humboldt, and 5,904 feet, according to the railroad-engineers.

HOTELS.—*Diligencias*, *Del Ferrocarril Central*, *Del Aguila Roja*, *Ruiz*, and *Hidalgo*.

BATHS, in the *Calle de Locutorios*.

POST-OFFICE, in the same street.

Querétaro is the capital of the State of the same name, and was founded by the Aztecs about the middle of the fifteenth century. It was conquered by the Spaniards, under Fernando de Tapia, a lieutenant of *Cortes*, in 1531. The city contains many fine edifices, several public squares, and numerous paved streets. It has a temperate climate, and fruits, flowers, and the cereals grow abundantly in the environs. The water-supply comes from a neighboring mountain, by means of a stone aqueduct, some of the arches of which are ninety feet high. The cost of this structure was $124,000, the greater part of which was paid by the Marquis de Villar del Aguila, to whom the citizens have erected a statue on one of the *plazas*.

PLACES OF INTEREST.—1. The Churches of *San Francisco*, or the Cathedral; *San Antonio*, *San Agustin*, *Santo Domingo*, *Santa Clara*, *El Car-*

men, *de la Cruz*, and *Santa Rosa*. *Santa Clara* is the finest of all, and contains exquisite gilt wooden carvings. A convent adjoins it. 2. The *Hercules* cotton-mill. 3. *El Cerro de las Campanas*. 4. The *Alameda*, with beautiful groves of ash-trees.

No traveler should leave the country without visiting the famous *Hercules* mill. The railroad-track runs close to it, and the distance by carriage from *Querétaro* is about two miles. The factory was begun in 1840 by *Señor Rubio*. The cost of building it, together with the ground, was $4,000,000. It is a sort of citadel. Inclosed by a high wall, provided with port-holes, occupying several acres, and giving employment to 1,400 operatives, it forms a manufacturing town of itself.

The *Rubio* family live here, and their apartments adjoin a beautiful garden, laid out with artificial ponds and statues. The buildings are of stone, and the machinery has been imported principally from England. Both steam and water power are used in the factory, and it has one of the largest overshot wheels in the world, being fifty feet in diameter. The operatives are all Mexicans. There are, however, half a dozen Europeans employed as foremen and superintendents. The force of hands is kept working both day and night, and an immense number of yards of unbleached cotton, called *manta*, is manufactured annually. *Señores Rubio* have a small "army" of thirty-eight soldiers, who are provided with muskets and howitzers. Thus far the owners have defended their property successfully against the insurgents during several revolutions. The proprietors say that there has been but one strike among the operatives during the last twenty-five years.

Don Cayetano Rubio is the present manager of the establishment. He went to Manchester, England, when a lad, and learned the trade of cotton-spinning. He is very polite to strangers, and sends a clerk to accompany them through the factory. The *Hercules* mill suggests much

material for study to foreigners who are reckoning on the future of manufactures in Mexico.

The *Cerro de las Campanas* is the hill on the north side of which the unfortunate Maximilian was shot. During the empire, earthworks were built on this eminence, which rises about one hundred feet above the plain. The Liberal army, under General Escobedo, besieged *Querétaro* while Maximilian was in command. Through the treachery of Colonel Miguel Lopez, the Emperor was taken prisoner, and his forces subsequently surrendered to the Liberals. Maximilian was tried before a court-martial, and sentenced to be shot. Persistent efforts were made to save his life. The Princess Salm-Salm is said to have ridden to *San Luis Potosí*, the seat of the Republican Government, 160 miles distant, and begged President Juarez to pardon the adventurer from *Miramar*. The Government of the United States was appealed to in vain. None of the European potentates ventured to intercede, and *Maximilian*, together with his comrades in arms, Generals *Miramon* and *Mejia*, was shot on June 19, 1867. His body was subsequently taken to Vienna for interment.

The night before the Emperor's execution, he wrote the following letter to his wife, who was then a maniac, confined in one of the palaces of her father, the King of the Belgians:

"To MY BELOVED CHARLOTTE: If God ever permits you to recover and read these lines, you will learn the cruelty of the fate which has not ceased to pursue me since your departure for Europe. You carried with you my soul and my happiness. Why did I not listen to you? So many events, alas! so many unexpected and unmerited catastrophes, have overwhelmed me, that I have no more hope in my heart, and I await death as a delivering angel. I die without agony. I shall fall with glory, like a soldier, like a conquered king. If you have not the power to bear so much suffering, if God soon reunites us, I shall bless the divine and paternal hand which has so rudely stricken us. Adieu! Adieu! Thy poor MAX."

A diligence runs three times a week from *Querétaro* to *San Luis Potosí*, the distance being 160 miles, and the fare

is $10. The road is rough, and two days are required for the trip. The route passes through two towns named after heroes of the War of Independence—*San Miguel de Allende*, a well-built city of about 20,000 inhabitants, and *Dolores Hidalgo*. The latter was the parish of the illustrious *padre, Hidalgo*, and it was here that he sounded the key-note for the Independence of Mexico, while addressing the populace on the 16th of September, 1810.

2. From QUERÉTARO to GUANAJUATO, 160 kilometres, or 100 miles.

Leaving *Querétaro*, the road traverses a rich agricultural plain bounded by hills of moderate extent. The track runs nearly due west to *Calera* (264 kilometres), elevation, 5,904 feet, and the grade is now slightly downward. Passing the station of *Apaseo* (278 kilometres), we reach *Celaya* (292 kilometres), where the elevation is 5,800 feet. At the latter point the main line of the Mexican National Railway crosses the track. (For a description of this route, see Section IV, pp. 237–252.)

Celaya (*Hotel Cortazar*) lies in a broad plain. The population is about 15,000. The town is noted for its churches. Those of *San Francisco* and *El Carmen* are worthy of a visit. Several woolen-factories are found here. There are also factories of cotton thread at the town of *Salvatierra*, 20 miles distant.

Celaya is destined, when the American trunk-lines are completed, to become a place of some importance.

Leaving this station, the road continues in a westerly direction with a gradual descent to *Guaje* (311 kilometres), and thence to *Salamanca* (333 kilometres). The latter place has an altitude of 5,680 feet, and a population of 13,000. It is celebrated for the manufacture of leathern clothing and gloves. Boys bring the latter into the cars for sale. There are also rich deposits of kaolin and white clay here. The best hotel is the *Cortazar*. At *Salamanca*

the line takes a northwesterly direction, and, passing the station of *Chico* (344 kilometres), reaches *Irapuato* (353 kilometres). A diligence connects at the latter town with *La Piedad* and *Barca*, and thence to Lake *Chapala*. The population of *Irapuato* is about 12,000.

The track now ascends in approaching *Villalobos* (370 kilometres), and the next station is *Silao* (383 kilometres).

SILAO.

Population, about 10,000; elevation, 5,910 feet.

HOTEL.—*Hidalgo*. Also an excellent restaurant kept by a Frenchman opposite the station.

The town lies in a district where two crops of wheat and maize are grown annually. Irrigation is necessary, however, and the water is commonly raised from the ditches by a rude bucket-wheel worked by man-power.

The wheat-harvest is thirty-five and forty for one, and sometimes even as high as fifty or sixty to one. In the farms that are properly irrigated, the wheat is twice watered: first, when the young plant springs up in the month of January; and, secondly, in the beginning of March, when the ear is on the point of developing itself. Sometimes even the entire field is inundated before sowing. This method resembles the mode of cultivation of the cereals in lower Egypt. (*Vide* p. 95.)

A branch road leads to *Guanajuato*, 23 kilometres distant. This town is situated in the low range of mountains that forms the northern boundary of the plain. The intervening region has an undulating surface, and very little vegetation except the *nopal*. The branch track runs northeasterly, and the upward grade is heavy. It was finished in November, 1882. The line is built as far as *Marfil* (18 kilometres). At this station, both stage-coaches and horse-cars connect with *Guanajuato*, 5 kilometres distant. The fare in the former is 25 cents for each passenger

with ordinary baggage, and in the tramway 15 cents, first class, and 7 cents, second class. The railway company intends to extend its track to *Guanajuato* in a few months.

GUANAJUATO.

Population, 56,112; elevation, 6,836 feet, according to Humboldt.
HOTELS.—*Del Suizo*, *Bayas*, and *Diligencias*.
RESTAURANTS.—*De Bordeaux*, *Frances*.

Guanajuato is the capital of the State of the same name, and lies in latitude 21° north, and longitude 1° 49′ west of the City of Mexico.

The city was founded by the Spaniards in 1554. It received the royal privilege of *villa* (town) in 1619, and that of *ciudad* (city) on the 8th of December, 1741.

PLACES OF INTEREST.—1. The Church of *La Parroquia*. 2. The Mint. 3. The Prison (*El Carcel*). 4. The Silver-mills (*haciendas de beneficios*). 5. The Silver-mines. 6. *Cerro* (hill) *de San Miguel*. 7. The *Pasco*.

In 1803 Humboldt states that the population *within* the city was 41,000, and in the adjacent mines of *Marfil*, *Santa Ana*, *Santa Rosa*, *Valenciana*, *Rayas*, and *Mellado*, it was 29,600, making a total of 70,600, of whom there were 4,500 Indians. The same writer, in his *Political Essay on New Spain*, vol. iii, p. 138, ranks *Guanajuato* first in a list of the richest mining districts of Mexico. He remarks also that the vein of *Guanajuato*, from the end of the sixteenth century to the year 1800, produced *fourteen hundred million* (*1,400,000,000*) *francs* worth of silver, besides some gold. (See chapter on mines, in Part First.) This vein is familiarly called the *Veta Madre*, and the mines on it began to be worked in 1558.

For several years past these mines have not paid well, and it is believed by many persons that their mineral wealth has been exhausted. This impression, however, is not well founded, as the mines have in only two instances (*Rayas* and *Valenciana*) been explored to a depth of 1,500

feet. It is highly probable that rich bodies of ore will be met with by sinking the shafts deeper.

There are several families of great wealth in *Guanajuato*, whose fortunes have been acquired in silver-mining. Humboldt states that the Count de Valenciana dug three pits in one mine at an expense of $1,700,000. The proprietors of these mines are unwilling to sell them except at a large profit, as this class of real estate is regarded as a good investment.

At present but two English companies own mineral property in this region. One of them has an agency for the examination and purchase of Mexican mines. Thus far the Americans have not bought mines in this vicinity. Their mineral lands are mostly in the northern States of the Republic.

The traveler will have no better chance of visiting a mine than in *Guanajuato*. Accordingly, he is advised to descend one of the many pits in the suburbs. The *Rayas** and *Nopal* mines are both dry and well arranged. A carriage may be driven to the latter, and within a short walk of the former. Strangers are treated with great civility, and no card of admission is necessary.

The tourist will have an opportunity of seeing the celebrated *peons* at work, with their primitive tools and methods of mining. But he will be obliged to descend and ascend the massive stone steps to reach the vein, as no "elevators" have thus far come into use. A fee of twenty-five cents will be sufficient to give the boy who accompanies the traveler through the mine. (See p. 81.)

There are fifty mills for crushing and reducing silver-ores in *Guanajuato*. All of them are worked by horse-power, except the *Pardo* mill, which is operated by steam. This mill has six stamps and twenty-two *arrastras*. The

* The *Rayas* mine has three shafts, the deepest of which is 1,640 feet. In April, 1883, two thousand *peons* were employed.

ore is brought in sacks from the neighboring mines by pack-mules, and it is worked by the cold amalgamation or *patio* process, which was invented in 1557 by *Bartolomé Medina,* a Mexican miner. A description of it may be of interest:

The ore is first put in the mill (*molino*), which is a circular depression in the ground, and crushed by a revolving stone wheel covered with a thick cast-iron tire, and having a horizontal axis. The wheel is moved by two mules attached to a long shaft. There is a coarse iron sieve in the center of the mill, at the base of the vertical post in which the axle of the wheel is fastened. As the ore is crushed, a *peon* shovels it against the sieve, and the smaller pieces pass through an opening in the ground surrounding the post, and are collected in a vault below. The small particles of ore are now carried in litters to the *arrastras*, which are flat stones of porphyry, or some other hard rock, about three feet long, which revolve in a large tub.

The tub is half full of water, and the *arrastras* grind the fragments of silver-ore into a fine powder in about twenty-four hours. Mules are used to give a rotary motion to the *arrastras*, each animal working six hours. The machinery is run day and night. The next step is the conveyance of the pulverized ore, called *lama*, in a trough (*batea*) to the *patio* or court-yard. The *patio* is paved with large flat stones, and the soft *lama* is allowed to accumulate to a depth of about two feet. This muddy mass is then mixed with *magistral*,* or blue vitriol, salt, and quicksilver, by scattering these substances with the hand, and employing mules to walk about in the *torta*, as it is now termed. A laborer rolls up his breeches and stands in the *torta*, holding the reins of three mules harnessed together, and drives the animals around him, changing his position every few minutes, in order to impregnate the powdered ore thoroughly with the several chemicals.

The mules tramp through the *torta* for seven hours daily, and the time required to mix the mass properly varies from two to four weeks, according to the quality of the ore.

The *torta* is then carried in litters to the *lavaderos*, or large cisterns, where it is washed and stirred by means of revolving sticks. The silvery mass being heavy, of course, settles at the bottom, and in two or three days the muddy water is drawn off. The amalgam, or *pella*, which has been formed, is now taken from the *lavaderos* to a sort of oven or depression in the ground, covered with a huge metallic hood termed a *capellina*. A fire is built around the *capellina*, and the mercury is separated by distillation in about four days. The block of silver which remains is transported to the nearest mint, and worked into coin or sold. The law of Mexico com-

* Native sulphide of iron and copper.

pels the owners of *haciendas de beneficios* to send their silver to the mint. If the owner wishes to export the bullion, he must first obtain a certificate from the director of the establishment.

N. B.—A picture of the *patio* process may be found on p. 198.

The *peons* are searched, when leaving the silver-works, at the end of the day's work, as fragments of the precious metal are often concealed in their hair and clothing. (See p. 81.)

The prison, or *carcel*, is worthy of a visit. It occupies an eminence in the heart of the city, near the causeway (*calzada*), and was formerly a castle. It was also the last stronghold of the Spaniards in *Guanajuato* during the great revolution. The castle was defended with fire-arms, while the Mexicans had merely primitive weapons, such as clubs, knives, missiles, etc. Finding the fortress impregnable, the latter approached the gate on all-fours, with flat stones on their backs to serve as armor, and set fire to it. The Spanish oppressors surrendered, and the natives decapitated four of the leaders, and hung their heads in the corners of the court-yard of the castle.

The prison is a two-storied building, about 150 feet long and 75 feet wide. The inmates work at various trades.

The traveler should ascend the *Cerro de San Miguel*, which lies south of the mint, and about twenty minutes' walk from the *plaza*, to obtain a correct idea of the location of *Guanajuato*. It will be seen that the city is built in a gorge, surrounded by rolling hills. The narrow streets are winding, and they have a cobble-stone pavement. The tourist is reminded of the towns in the Swiss Alps. Looking across the city, the observer has a fine view of the principal suburbs, the mines being chiefly on the northern and western sides of *Guanajuato*.

There are some foreigners living in the city. They are mostly French, although a few Germans, Spaniards, Englishmen, and Americans can be included in the number.

The inhabitants are disposed to introduce modern inventions, such as the electric light and telephone. A New York company has erected seventy-five telephones, many of which connect the mines with the houses and offices of the owners.

The greater part of the population of *Guanajuato* consists of miners, who are an industrious and well-to-do class of people. On Sundays they dress up in their best clothes, and walk on the *plaza* and *paseo* with their families.

The tourist can spend a week in *Guanajuato* to advantage, during which an excursion may be made to *Dolores Hidalgo*, about 35 miles northeast of the city. (See p. 263.)

8. From GUANAJUATO to LAGOS, 115 kilometres, or 72 miles.

Leaving *Guanajuato*, the stage-coach sets out from the door of the hotel, and connects with the train at *Marfil*, 5 kilometres distant. The track has a downward grade nearly all the way to *Silao*, 18 kilometres farther. The railroad company has erected a large wooden station and freight-house at the latter point. This branch road carries large quantities of quicksilver, salt, and *magistral* to *Marfil* for the silver-reducing works. (See p. 267.)

From *Silao* the road continues in a northwest course through the fertile plain, passing the station of *Trinidad* (402 kilometres), and reaches *Leon* (416 kilometres). The grade ascends slightly to a point just west of *Trinidad*, having an altitude of 5,963 feet, and then descends toward *Leon*.

LEON.

Population, about 80,000; elevation, 5,862 feet.

HOTELS.—*Comercio, de la Luz, Colon.*

Tramways run to the city, 1½ mile north of the station; fare, 10 cents for each passenger. The towers of the cathedral and several domes of the churches are visible from the train.

Leon is noted for its manufactories of saddles and leathern goods, and a quarry of building-stone is found near

the town. *It is said* to have had 166,000 inhabitants in 1865. The residents claim that their city is second to the national capital in population. It is, however, greatly inferior to *Guadalajara* and *Puebla* in mercantile importance and in objects of interest. There is very little wealth in *Leon*. The city lies near the terminus of the rich cereal belt of the table-land, which is about 80 miles long, and from 21 to 26 miles wide, according to Humboldt.

From *Leon* the railroad goes northwesterly, with an ascending grade toward *Lagos*. Passing the stations of *Rincon* (431 kilometres), *Pedrito* (448 kilometres), and *Loma* (462 kilometres), the train arrives at *Lagos* (475 kilometres). This city is 13½ hours' journey from the capital. On October 15, 1883, trains were running to *Encarnacion*, 41 miles beyond *Lagos*.

LAGOS.

Population, 10,000; elevation, 6,153 feet.

HOTEL.—*Diligencias.*

STAGE-COACHES leave *Lagos* as follows: For *Guadalajara*, 2 days distant; fare, $14. For *Zacatecas*, 2 days distant; fare, $10. For *San Luis Potosí*, 2 days distant; fare, $10. A special diligence for *San Luis Potosí* in 16 hours; fare, $12.50.

4. From LAGOS to GUADALAJARA and SAN BLAS.

Guadalajara lies about 130 miles west-southwest of *Lagos*. The road is a rough one, and two days are required for the trip. The Mexican Central Railway Company will extend its line over this route to *Guadalajara*, and thence to *San Blas*. (See p. 272.)

GUADALAJARA.

Population, 78,600 in 1879; elevation, 5,052 feet.

HOTELS.—*Nacional*, *Hidalgo*, *Diligencias*, and *Nuevo Mundo*.

The city is situated in latitude 20° 41′ north, and on the west bank of the *Rio de Santiago* (the largest river in

Mexico except the *Rio Grande*). It is the capital of the State of *Jalisco*. The houses are well built, and the streets are wide and laid out at right angles. Some travelers consider *Guadalajara* to be the finest city in the Republic. Lying far in the interior, and remote from the railway, it has not been affected by foreign influence.

PLACES OF INTEREST.—1. The Cathedral and *Sagrario*. 2. The Government Palace. 3. The Bishop's Palace. 4. The Mint. 5. The City Hall. 6. The Academy of Fine Arts. 7. The *Plaza de Armas*. 8. The *Alameda*.



Plaza de Armas, Guadalajara.

The first three buildings are situated on the *Plaza de Armas*. The Cathedral was completed in 1618, and is one of the oldest in Mexico. The cupolas of both towers were destroyed by the great earthquake of May 31, 1818.

The city can boast of fourteen public squares, a university, and an academy of fine arts—the only one in the Republic except that of *San Carlos* at the capital. Much glazed pottery is made here; it is quite ornamental, and

may be found in the shops at the City of Mexico. There are several woolen and cotton manufactories in *Guadalajara.*

Opinions are divided as to whether this city or *Puebla* should rank next to *Mexico* in wealth and commercial importance.

Guadalajara lies in a fertile region. The cereals, fruits, and vegetables grow in abundance. Some farms are said to yield as much as forty bushels of Indian corn to the acre.

The following table of distances will be found useful:

From Guadalajara		to the City of Mexico *via* Lagos.....	424 miles.
"	"	Tepic.....	258 "
"	"	San Blas.....	300 "
"	"	Colima.....	142 "
"	"	Manzanillo.....	211 "
"	"	Morelia.....	191 "
"	"	Aguascalientes.....	149 "

An excursion may be made to the Lake of *Chapala,* about 40 miles distant. This lake is the largest in Mexico, having an area of 415 square miles. (See p. 30.) There are several islands in it, on one of which ruins have been found. A small American steamboat makes a tour round the lake daily. The depth of Lake *Chapala* has not yet been ascertained.

Diligences run from *Guadalajara* to *San Blas,* 300 miles distant, *via* the villages of *Amatitan, Tequila, Ixtlan, Tetitan, Zapotlan,* and *Tepic.* The latter place is a manufacturing town of 20,000 inhabitants. It is noted for producing a fine quality of cigars. The elevation of *Tepic* is 3,050 feet. The Mexican Central Railway Company will build a branch line from *Guadalajara* toward *San Blas,* which will run parallel to the stage route, or nearly so. It is expected that this branch will be finished in 1886.

San Blas has a population of 3,500. The Pacific Mail steamers touch at this port once a month. The distance to *San Francisco* is 1,519 miles, and the fare is $85.

The climate of *San Blas* is hot and very unhealthy. There are dense forests of tropical fruit-trees and plants in the vicinity.



Making Tequila.

5. From LAGOS to ZACATECAS; distance, 141 miles by railroad.

Leaving *Lagos*, the track runs nearly due northward. The road leads over a fertile plain, where the cereals are raised. Soon the country becomes rolling, and cultivation decreases in going toward *Aguascalientes*. There is a very sparse population in this region. Passing several hamlets, the train enters the city of *Aguascalientes*, 71 miles from *Lagos*. (See p. 270.)

AGUASCALIENTES.

Population, 35,000; elevation, 6,261 feet, according to Burkart.

HOTELS.—*Diligencias* and *Nacional*.

BATHS on the *Alameda*, which is reached by horse-cars; hot baths at 20 and 25 cents.

PLACES OF INTEREST.—The Cathedral, *Plaza de Armas*, and the *Pasco*. The latter is one of the finest parks in the country. The main line of the Mexican Central Railway was completed to the city during the current year, and the branch from *Tampico* to *San Luis Potosí* will probably be extended to this point. (*Vide* p. 238.)

Leaving *Aguascalientes*, the railroad traverses a flat country that is barren for the most part. The stations

are: *Rincon de Roma* (24 miles), *Soledad* (37 miles), *Guadalupe* (69 miles), and *Zacatecas* (71 miles). The last-named station is 435 miles, or 701½ kilometres, from the City of Mexico.

Some interesting ruins of Indian architecture are found at *Quemada*, about 30 miles southwest of *Zacatecas*, and 2½ miles north of the village of *La Quemada*, at an elevation of 7,406 feet above the sea-level.

The remains are situated on a rocky eminence that rises abruptly from the plain. It is called "*El Cerro de los Edificios.*" The summit is reached by a causeway. An area of six acres has been inclosed by a broad wall, forming a sort of citadel. This barrier surrounds a quadrangle 240 × 200 feet, which to the east is sheltered by a strong wall of unhewn stones, eight feet in thickness and eighteen in height. A raised terrace of twenty feet in width passes round the northern and eastern sides of this space, and on its southeast corner is yet standing a round pillar of rough stones of the same height as the wall, and nineteen feet in circumference.

There are vestiges of five other pillars on the eastern, and four on the northern terrace. There is another quadrangle surrounded by perfect walls of the same height and thickness as the former one, and measuring 134 × 137 feet. This space contains fourteen columns of equal dimensions with that of the adjacent inclosure. They were made of clay mixed with straw.

There is a flat-topped pyramid of hewn stown in one of the quadrangles. Two small pyramids may also be seen. One chamber has an irregular structure 7 × 5 feet near the center. It was probably an altar, and the room may have been used as the Hall of Sacrifice or Assembly. These ruins are probably the work of the Aztecs.

At *Guadalupe*, 4 miles from *Zacatecas*, the land rises rapidly. The former town is seen in the distance several



Ruins of Quemada.

miles before it is reached. It contains many furnaces and silver-mills, in which the ores from *Zacatecas* are worked. On account of the presence of sulphur, the ores are gener-

ally roasted before being treated in the crushing and reducing-mills.

The stage-coach enters a cañon at *Guadalupe,* and, traveling up a heavy grade, the old mining settlement of *Zacatecas* is reached. The latter place is 71 miles from *Aguascalientes,* and the time required to make the distance is 3½ hours.

ZACATECAS.

Population, 46,000, including *Guadalupe;* elevation, 9,012 feet,* according to Burkart.

HOTELS.—*Zacatecáno, Del Comercio, Nacional,* and *Del Progreso.*

BATHS, in the *Plaza de Armas.*

POST-OFFICE in the *Calle de la Moneda.*

HORSE-CARS to *Guadalupe* (see time-table).

Zacatecas is one of the oldest mining towns in Mexico. It received the title of city in 1585 from Philip II. The streets are well paved and somewhat tortuous, although not as much so as in *Guanajuato.* The city is not behind the age, even if lately (1884) reached by the Central Railway, and a considerable distance from any seaport. The electric light shines on the *plaza,* and a number of telephones are in use. *Zacatecas* lies in an arid and mountainous region, with an inclement climate.

PLACES OF INTEREST.—1. The Cathedral; observe carvings on the façade. 2. The Palace. 3. The Mint. 4. The *Bufa,* a hill north of the city. 5. The silver-mines.

There are fourteen churches of minor importance and a Protestant chapel. Some of them are ornamented with artistic gilt wooden carvings and old paintings, that were transported to the city at enormous expense.

The tourist should ascend the *Bufa,* about 500 feet above the *plaza,* for a view of the city and its environs.

There is a small chapel on the summit, known as the

* This is too high an estimate; 8,000 feet would be more correct.

Capilla de la Bufa. It is worthy of remark that several kinds of igneous rocks occur near each other on this mountain. The observer will see that the city is built in a valley, surrounded by rolling hills, which contain numerous mines. He stands on top of a ridge that rises from the great table-land. To the westward lies the spur of the *Sierra Madre*, which extends nearly to the Pacific coast. There are many low ridges running north and south, that are situated on the eastern and northern sides of the *Zacatecas* range. The country is very barren, scarcely a particle of vegetation being visible. The broad plain below has an elevation of about 7,000 feet, and there are nine small lakes of salt and carbonate of soda in this plain, a few miles from *Zacatecas*. This salt is transported to *Guadalupe* for use in the silver-mills. The geological formation of this district has been compared by Humboldt to that of Switzerland.

The mines next demand attention. In mineral wealth *Zacatecas* is the richest *State* in Mexico. The district, however, which includes the city, does not rank first. In 1804 Humboldt placed *Zacatecas* third in a list of the principal mining towns.

Guanajuato ranks first and *Catorce* second in the production of the precious metals. The *Veta Grande*, or great vein, is next in magnitude to the *Veta Madre* of Guanajuato. Its average width is about 25 feet, and in a few places it has a breadth of 75 feet, although the entire mass is not metalliferous. The mines of *Zacatecas* began to be worked in 1548. Up to the year 1732 they are said to have produced the enormous sum of $832,232,880, on which a tax of $46,523,000 was paid to the Spanish treasury.

About 1728 the mines of *Zacatecas* yielded $1,800,000 annually, which was then estimated as one fifth of all the silver coined in Mexico.

During the War of Independence, the amount of pre-

cious metal extracted greatly diminished; and at the present time (1884) these mines are not doing well. It remains to be seen whether their wealth is exhausted, or whether new bodies of ore will yet be found in paying quantities.

There are a dozen mines within a half-hour's walk of the principal hotels, and which can readily be visited. It is best to go in the morning. A series of ladders is used in most of them, instead of the massive stone steps as in *Guanajuato*. The largest mine is the *San Rafael*, and the oldest one bears the name of the famous Cortes. The latter is about two miles north of the city. An English company owns the *Clerigos* mine. Two other mines in the vicinity are also owned by Englishmen. There is one American company in *Zacatecas*, called the Chicago and Mexican Syndicate, that controls several mines in this district.

Stage-coaches run from *Zacatecas* as follows:

To *San Luis Potosí*,	distance	156	miles;	fare,	$12.00.
" *Jerez*,	"	40	"	"	1.50.
" *Fresnillo*,	"	37	"	"	1.00.
" *Durango*,	"	234	"	"	14.00.

A well-known Mexican, named Sada, has run a line of ambulances, called "the money-train," from *Zacatecas* to *Monterey* for many years. Before the Mexican National Railway was built, Sada drove his wagons as far as the frontier, at *Laredo*. The time required to reach *Monterey* is six days and a half, and the fare is $40, including board and lodging on the journey. A dozen mounted guards accompany the train. Bullion and silver coin are carried chiefly, although packages and personal baggage will also be forwarded. The route to *Monterey* traverses an arid and barren region, having a gently undulating surface, and very little vegetation, except the various species of cactus. The road goes *via* the *hacienda de Cedres* and *Saltillo*.

This *hacienda* is the only redeeming feature of the trip, and it is one of the largest in Northern Mexico. There are

some silver-mines on it, as well as many horses, cattle, and sheep.

The train of ambulances starts about daybreak, and travels till noon; then a long rest is taken, after which the wagons continue the journey till sundown. Many extra mules follow the train, and, when one of the animals grows tired, a change is at once made.

The Mexican Central Railway will probably be completed at *Fresnillo* on March 15, 1884, and will then be extended toward *Durango* as rapidly as possible.

The country north of *Zacatecas* does not present any obstacles to the construction of a railroad. The grading will be easy all the way to the border. The plain is *apparently* level for hundreds of miles. The engineers report that the maximum grade from *El Paso* to *Fresnillo* will be six tenths per hundred feet.

Humboldt has stated in the *Cosmos*, vol. v, p. 380, that the great table-land from *Mexico* to *Santa Fé*, a difference of parallels of fully 16° 20′ (equal to about 1,200 miles), can be traversed in four-wheeled carriages without the advantage of artificially prepared roads. (*Vide* p. 28.) On these facts it may be assumed that lack of capital will only prevent the Mexican Central Railway Company from completing its line at an early day. The railroad will pass between the towns of *Villa de Coz* and *Fresnillo*. There is a large deposit of sulphate of soda at the former, and rich mines of silver are found at the latter, the principal of which are in the *Cerro del Proano*. The district of *Fresnillo* was discovered in 1569, and the city has a population of 15,000. The elevation is 7,244 feet.

From this point the line will run nearly due north, through the town of *Sombrerete*, which contains mines of gold, silver, lead, copper, and iron. Thence the road will pass near *Durango*, where the famous iron mountain, the *Cerro del Mercado*, is found. The elevation of *Durango* is 6,847 feet, according to Humboldt. This town is the capital of the State of the same name, and lies in latitude 24° 2′ north. It has a population of 27,119.

An American mining company has recently been organized to work the iron deposits of the *Cerro del Mercado*.

Scorpions (*alacranes*) are common in *Durango*. They are often found in abandoned mines. As their sting is sometimes fatal, travelers should be careful to avoid these insects.

Owing to the formation of the table-land, the grade of the Mexican Central Railway will be slightly downward north of *Durango*.

A railroad is in course of construction from *Zacatecas* to *San Luis Potosí*. The concession is granted to the Mexican National Railway Company. The intervening region is arid and very barren for the most part. A few cattle and sheep are raised along the proposed route, and the country is gently rolling. *Ojo Caliente*, about 25 miles from *Zacatecas*, is a town of some importance. It has a good hotel, adjoining a fine grove of trees.

From this place to *Las Salinas* the country is covered with *nopal*, *tazahillo*, *huisachi*, and dagger-plant, interspersed with a little *mesquite*.

There are several salt lagoons at *Las Salinas*, as the name suggests, and the owner, Señor Erazos, has built a stately residence, which is surrounded by a stone wall and a deep moat. A draw-bridge across the moat is raised at night, reminding the traveler of the baronial castles of the middle ages.

The country between this town and *San Luis Potosí* is rolling, and a portion of it is adapted to grazing. Some *maguey* grows along the route.

(For description of *San Luis Potosí*, see pp. 237–240.)

Route II.

1. *El Paso* to *Chihuahua.*
2. *Chihuahua* to *Jimenez.*

1. From EL PASO to CHIHUAHUA. Distance, 225 miles; time, 14 hours. One passenger-train daily.

EL PASO, TEXAS.

Population, 3,000; elevation, 3,600 feet.
HOTELS.—*Central*, *Windsor*, and *Pierson House.*

El Paso is a great railway center, and is destined to grow rapidly within a brief period. Real estate is becoming higher in price, and the rents for all classes of buildings are said to be enormous. There is a union depot occupied by the *Southern Pacific* and the *Missouri Pacific Railways.* The *Atchison, Topeka and Santa Fé* Railroad Company has also a depot. The last-named line makes connection with the Mexican Central Railway, and it is the most desirable route from the eastern and central cities of the United States to Mexico in the summer season, which will henceforth be the time when most travelers will approach Mexico by land.

Leaving *El Paso*, the train crosses a six-pile bent trestle-bridge over the *Rio Grande** which connects this town with *Paso del Norte*. An iron bridge will soon take the place of the trestle-work. There is besides a small-pile



Church and Plaza, El Paso.

trestle-bridge, owned and operated by the horse-car company, which is also used as a highway for wagons and pedestrians.

The population of PASO DEL NORTE is about 7,000. (*Hotel Gallardo.*)

This town is the terminus of the Mexican Central Rail-

* The width of the *Rio Grande* varies from 300 to 600 feet in the vicinity of *El Paso*.

way, although the company's trains are run across the river to *El Paso.*

Leaving *Paso del Norte,* the following stations are passed:

Distance from P'aso Del Norte.	Stations.	Elevations.
Miles.		Feet.
	Paso Del Norte	3,600
30	*Samalayuca*	4,300
74	*San José*	3,950
96	*Ojo Caliente*	4,090
139	*Gallego*	5,360
164	*Laguna*	
181	*Encinillas*	5,060
192	*Sauz*	5,168
210	*Sacramento*	
224	*Chihuahua*	4,690

The country between *Paso del Norte* and *Chihuahua* is well adapted to grazing. There are several large mining districts on either side of the line of the railroad, at distances varying from ten to a hundred miles. The mines are chiefly of silver, although there is an extensive deposit of iron-ore near *Ojo Caliente.*

About 100 miles west of *Samalayuca* lies the old *presidio* or military post of *Janos.* It is 35 miles north of the ruined town of *Casas Grandes,* which is about half a mile distant from the modern town of the same name.

The remains lie adjacent to a fertile valley about two miles in width.

They are built of *adobe,* and are called the "*Casas de Montezuma.*" They face the cardinal points, and consist of fallen and erect walls. The latter are from five to thirty feet in height. The edifices resemble the *Pueblo* dwellings of Arizona and New Mexico. Fragments of pottery have been found in them. The original buildings are supposed to have had three stories and a roof, with stairs outside, probably of wood.

Passengers on the *Chihuahua* division of this road gen-



Janos, Chihuahua.

erally travel either in the first or second class cars, the proportion being evenly divided. There is but little third-class travel. The freight carried by this company consists of lumber, coal, machinery, live-stock, and general merchandise. Bullion is transported in considerable quantities by Wells, Fargo and Company's Express.



Casas Grandes, Chihuahua.

CHIHUAHUA.

Population, 17,500, of which about 1,500 are foreigners; elevation, 4,690 feet.

HOTELS.—*American* and *National.*

BATHS, on the upper *Alameda.*

TELEGRAPH and POST-OFFICE, on the main *plaza.*

BANKERS, Messrs F. MacManus & Sons.

Chihuahua, the capital of the State of the same name, lies on a broad plain at the base of the *Sierra Madre,* in north latitude 28° 35′ 10″.

The city was settled toward the close of the seventeenth century by some adventurers, for the purpose of working the rich silver-mines in the vicinity. In 1833 the population was 10,600, and in 1853 it was 12,000.

PLACES OF INTEREST.—1. The Churches of *La Parróquia* (or Cathedral), *Guadalupe,* and *San Felipe.* 2. The College of the Jesuits, in the rear of

which the great revolutionary leaders Hidalgo and Allende were beheaded. 3. The Palace. 4. The Tribunal of Justice. 5. The Mint. 6. The *Alhondiga*, or granary. 7. The Aqueduct (6,068 yards long).

The Cathedral, or parochial church, stands on the *plaza*. It is built of cut stone of a very light color, and has two towers and a dome. The exterior is very imposing. The church cost $800,000. It was erected from a fund raised by levying a tax of one *real* on every mark * of silver obtained from the mines of *Santa Eulalia*, fifteen miles distant.

Fruit, vegetables, and the cereals grow in the environs of the city. There is fine grazing-land in *Chihuahua*. In 1871 the American consul reported that there were 800,000 sheep and 250,000 cattle in the State.

The climate is salubrious, the temperature ranging from 16° to 94° Fahr. May, June, and July are the warmest months, but the nights are always cool and pleasant during this season. The rains begin about the 25th of June, and last till the middle of October.

2. From CHIHUAHUA to JIMENEZ, 146·3 miles.

On June 1, 1883, this section of the road was finished, and trains began to run about August 1st.

Leaving *Chihuahua*, we pass through a grazing country for about 50 miles, when the valley of the *San Pedro* River is reached. Maize, wheat, and cotton are grown here. Proceeding southward, we enter the valley of the *Conchos* † River, near the station of *Santa Rosalia*.

Much wheat and Indian corn are produced in this vicinity, the chief part of which is consumed in the State of Chihuahua among the various mining towns. Fifty miles south of *Santa Rosalia* we reach the valley of the

* Eight dollars.

† This river flows northerly and empties into the *Rio Grande* near the town of *Presidio del Norte*.



Aqueduct and Church of Santa Rita, Chihuahua.

Florido River, where the cereals and some cotton are cultivated. The rich mining districts of *Parral* and *Santa Barbara* lie about 50 miles to the southwest. We soon arrive at *Jimenez*, a town of about 8,000 inhabitants, which is situated near the *Rio Florido.*

The stations on this division are :

	Miles from Chihuahua.		Miles from Chihuahua.
Chihuahua	0·0	*Saucillo*	68·7
Mapula	14·4	*Concho*	78·4
Horcasitas	28·3	*La Cruz*	91·1
Temporary siding No. 1	33·7	*Santa Rosalia*	101·0
Bachimba	39·1	*Bustamante*	110·8
Temporary siding No. 2	46·7	*Florido*	122·7
Ortiz	54·2	*La Reforma*	133·6
Las Delicias	58·7	*Jimenez*	146·3

On October 15, 1883, the railway was in operation as far as *Villa Lerdo*, 515 miles south of *Paso del Norte*.

The stations beyond *Jimenez* are :

	Miles from Chihuahua.		Miles from Chihuahua.
Corralitos	167	*Concjos*	237
Zavalza	200	*Mapimi*	266
Laez	212	*Villa Lerdo*	291
Yermo	223		

The elevation of *Villa Lerdo* is 3,900 feet. It lies in the so-called "laguna country."

The maximum grade for 600 miles south of *El Paso* will be but 37 feet to the mile. (*Vide* p. 279.) There are only two important bridges, those at the *San Pedro* and *Conchos* Rivers, which are built of iron, with spans of 150



La Punta de Sauz Cienega.

feet, and with stone piers. Each bridge is 1,000 feet in length. There are no tunnels on the line. The work on the railway is progressing at the rate of a mile and a half per day.

It is expected that the *Chihuahua* division will connect with the southern terminus of the line about April 1, 1884. At present 2,000 men are at work on the division between *Paso del Norte* and *Zacatecas.*

The following is a list of the various ranches along the line of the railway, as far as the present terminus—viz., *Villa Lerdo:*

Samalayuca, 1,500 head of cattle; *San José*, 3,000 head of cattle; *Corralitos*, 10,000 cattle and 30,000 sheep; *Santa Domingo*, 3,000 head of cattle; *Ojo Caliente*, 1,000 head of cattle; *Carmen*, 3,000 head of cattle and 30,000 sheep; *Gallego*, 3,000 head of cattle; *San Lorenzo*, 60,000 sheep; *Encinillas*, 5,000 head of cattle; *Agua Nueva*, 4,000 cattle and 5,000 sheep; *Torreon*, 4,000 cattle and 10,000 sheep; *Sauz*, 5,000 cattle; *Sacramento*, 2,000 cattle; *Labor*, 1,500 cattle; *Tabalopu*, farming, and 1,000 cattle; *Rancho de Avilos*, 1,500 cattle; *Mapula*, 5,000 cattle; *Rancho Viego*, 5,000 cattle; *Bachimba*, 4,000 cattle; *Dolores*, farming; *Saucillo*, cotton and grain; *Santa Gertrudes*, 7,000 cattle; *San Luis*, 2,500 cattle; *La Cruz*, farming; *Santa Rosalia*, hot sulphur springs, cotton and grain; *Enremoda*, 3,000 cattle; *Jimenez*, farming; *Corralles*, 2,000 cattle; *General Grande*, not stocked; *Cadena*, 2,000 cattle; *San Isidro*, 2,000 cattle and 40,000 sheep; *Membreca*, 50,000 sheep; *Villa Lerdo*, cotton, grain, and sugar-cane.

The stations south of *Villa Lerdo*, as announced on March 4, 1884, are as follow, with the distances from *El Paso:*

	Miles.		Miles.
Matamoros	528	*Juanita*	668
Picardias	544	*San Felipe*	680
Jimulco	562	*La Colorada*	696
Polvareda	572	*Cedro*	708
Calvo	586	*Canitas*	717
La Mancha	600	*Calabasas*	731
Real	615	*Fresnillo*	750
San Isidor	629	*Calera*	767
Palmeo	642	*Zacatecas*	786
San Pedro	656		

American miners have been introduced to some extent in several of the Chihuahua districts, and Chinamen are employed by an English mining company at *Pinos Altos*. *Peon* labor is, however, cheaper in the present condition of the country. It is highly probable that European miners will emigrate to Mexico within a few years. They will receive much higher wages here than at home, and the cost of living will always be comparatively low.



Chiricahui Mountains.

SECTION VI.

The International and Interoceanic Railway.



Scene in Northern Mexico.

(Compare with chapter on railroads.)

The full name of this line is the Mexican, Oriental, Interoceanic, and International Railway, although it is generally called the International and Interoceanic Railway. It is popularly known as "Jay Gould's road." So little work has been done thus far that the entire region which lies along the route can only be visited by wagon or on horseback.

The charter was granted on June 7, 1881. In May, 1883, this railway and the Mexican Southern Railroad, of which General U. S. Grant is president, were consolidated under one management. The two roads will henceforth be known as the Mexican Southern Railroad.

SECTION VII.

The Mexican Southern Railroad.

(See chapter on railroads.)

The original concession for building the Mexican Southern Railroad was granted on May 26, 1881.

We will describe the route of the former International and Interoceanic Railway before sketching the line of the Mexican Southern proper.

The first-named road was chartered to run from *New Laredo*, on the *Rio Grande*, to the City of Mexico, a distance of 680 miles.

The following is a condensed itinerary of this route :

A station has been erected at *New Laredo*, and on September 1, 1883, about 100 miles of road had been graded, but only a half-mile of track had been completed.

From *New Laredo* the route follows the course of the *Rio Grande* to *Mier via Guerrero.*

Leaving *Mier*, the road goes southward to *China.* The company has the option of constructing a branch to *Matamoros*, 100 miles distant from *Mier.* There are wagon-roads from *China* to *Monterey* (60 miles), and also to *Matamoros* (90 miles). The line passes to the eastward of *Teran* and *Linares*, running almost due south from *China* to *Victoria*, 270 miles from *New Laredo.*

There is not much cultivation along this division of the railway till *Victoria* is reached. Here many kinds of fruit and sugar-cane, as well as wheat and Indian corn, are grown. *Victoria* lies on the border of the *tierra templada.* It is

the capital of the State of *Tamaulipas*, and has a population of 8,000. The best hotel is the *Hidalgo*. This town is 271 miles from *San Luis Potosí via Tula*.

From *Victoria* the line will have a southeasterly direction, and it will cross the *Rio Pánuco*, near the village of *Tanjuco*, about 45 miles from its mouth. A good wagon-road goes from *Victoria* to *Tancasneque*, on the *Rio Ta-*



Victoria and Tula Pass.

mesí. A small steamer runs from the latter place down the river to *Tampico*. The scenery along this route is beautiful.

The company has the option of building branch roads to the port of *Tampico* and to *San Luis Potosí*, but the Mexican Central Railway Company is pushing the completion of its line from this port westward to *San Luis Potosí*, and has now (February, 1884) about ninety miles of track

finished. It is not probable, therefore, that the Mexican Southern will compete with the latter company.

Leaving the *Pănuco* River, the route will be southeasterly toward *Tulancingo*, and thence southwestward to the City of Mexico.

The line will be easy to construct as far as *Victoria*. South of this station it will extend through the mountains on the eastern edge of the great table-land, and will require rather heavy grades* and some tunneling. This division will traverse the *Huasteca* country, which is one of the richest portions of the Republic both in agricultural products and in mineral deposits.

The proximity of this railway to the seaboard should also be considered. This company has the choice of extending branch roads to *Tuxpan* and *Vera Cruz*. This scheme would, of course, be a formidable opposition line to the Mexican Railway Company.

Judging from the topography of the country, the new American road will be easier to construct than the Mexican Railway.

The southern division may be described as follows:

Leaving the City of Mexico, the Mexican Southern Railroad will run parallel with the Mexican Railway (as, in the terms of the charter, it is not allowed to cross it) to *Irolo* (45 miles). This division of the road will compete with the English line in the transportation of *pulque* to the capital. It is said that the Mexican Railway Company makes a net profit of $1,000 a day on the "*pulque*" train.

From *Irolo* the track will be continued over a level country to *Puebla* (111 miles). Thence the line will run southeasterly to *Tehuacan* (182 miles). A tramway leads from this station to *Esperanza*, 31 miles distant. (*Vide* Section II.)

The road will go south from *Tehuacan*, following the

* Two-and-a-half per-cent grades.

course of the *Rio Salado* for several leagues to *Arenal*, where the *Salado* and *Cuicatlan* Rivers unite and form the *Rio Quiotepec*.

Arenal is 237 miles from the capital. Three bridges will be erected in the vicinity. A branch line is in process of construction from *Anton Lizardo*, on the Gulf of Mex-



Scene in Mexico.

ico, toward *Arenal, via Amapa* and *Tuxtepec*. *Anton Lizardo* is 142 miles from *Arenal* junction. The former town is the only good port on the Gulf coast. The harbor has recently been improved. The eastern division of the Mexican Southern Railroad will be extended to *Vera Cruz*, 23 miles distant. The merchants in that city are very jealous of this railway. They foresee that it will eventually divert the foreign commerce to *Anton Lizardo*.

But little artificial grading will be required on the eastern division, and the heaviest grade, according to the surveys, is seventy-two feet to the mile.

From *Arenal* the main line will run almost due southward along the *Rio Cuicatlan* through a well-timbered region to *Sedas* (301 miles). Thence it will go to *Oaxaca* (350 miles).

The highest point of the route is 5,500 feet above the sea-level.

OAXACA.

Population, 26,228; elevation, about 5,000 feet.*
HOTELS.—*Nacional, De la Paz.*

The city is the capital of the State of the same name, and it has recently received the surname of the illustrious Juarez.† Señor Busto, the well-known statistician, calls it *Oaxaca de Juarez.* The word *Oaxaca* was formerly spelled *Guaxaca,* being derived from the Mexican name of the city and valley of *Huaxyacac* in the *Tzapotec* country. After the Conquest, Cortes received the title of Marquis of the Valley of *Oaxaca,* and some of his descendants are still living in this State.

PLACES OF INTEREST.—The Cathedral and several old convents.

Sugar-cane, maize, wheat, and barley grow in the vicinity.

The ruined palaces of *Mitla* lie about 25 miles east of *Oaxaca.* These ruins, except the *teocallis,* are the most accessible in Mexico. They are described in Chapter V in Part First.

Leaving the city of *Oaxaca,* the railway will run southward with a descending grade to *Amatlan, Ejutla,* and *Miahuatlan.* The latter town is about 65 miles distant from *Puerto Angel,* the principal port of the State. The Pacific Mail steamers touch there. It is also about 420 miles distant from the national capital.

From *Miahuatlan* the road takes an easterly course over

* Estimated by the author.

† Juarez was a pure-blooded Tzapotec Indian from *Oaxaca.*

a rugged country to the town of *Tehuantepec* (523 miles), which is only ten miles from *La Ventosa*, on the coast. The Pacific Mail steamers stop at the adjoining port of *Salina Cruz*. This place has a good harbor, and will become the terminus of the projected railway across the isthmus. The Mexican Southern Railroad will make connection with the Tehuantepec Railroad at the station of that name. The former road will be extended eastward from the town of *Tehuantepec* (population, 12,000) to *Tonalá* on the coast. (See Section IX.)

Tonalá lies in the State of *Chiapas*, and the steamers of the Pacific Mail Steamship Company call at this port once a month, the distances to *San Francisco* and *Panama* being 2,204 miles and 1,223 miles, respectively.

Leaving *Tonalá*, the main line bifurcates. One branch runs northeasterly to *San Cristobal*, and the other extends to *Tapachula*,* and thence will probably be continued to the city of *Guatemala*.

The region traversed by the southern division of the main line of this railway lies mostly in the States of *Vera Cruz*, *Oaxaca*, and *Chiapas*. It is very rich in mineral deposits and in agricultural products. The climate is salubrious, and the vegetation is luxuriant along the greater part of the route. The State of *Oaxaca* contains valuable mines of gold, silver, iron, copper, and mercury. The cereals, brown beans, and tobacco, are grown in abundance. This State is also noted for yielding a large supply of cochineal. Petroleum is found near *Puerto Angel*. The States of *Vera Cruz* and *Chiapas* are rich in coffee, sugar-cane, cocoa, tobacco, indigo, vanilla, and India-rubber. We may add that the former State ranks foremost in Mexico in the production of coffee and tobacco, and second in that of sugar.

* Señor M. Romero, the Mexican Minister at Washington, has resided for many years at *Tapachula*.

Several very wealthy and influential capitalists are stockholders in the Mexican Southern Railroad Company. It is now believed that the main line will be completed at an early day. Señor Matias Romero, in an article on *Railways in Mexico*, published in the *International Review* for November, 1882, states that the inhabitants of *Oaxaca* are very anxious to have this road finished as soon as possible; and that the merchants threaten to withdraw their capital from the State if the construction of the railway is delayed much longer.



SECTION VIII.

The Morelos Railway (Ferrocarril de Morelos).

(See chapter on railroads.)

This line has two divisions—one goes to *Texcoco* and *Irolo*, and the other to *Cuautla*. Both are the same as far as *Los Reyes*, 17 kilometres from the capital.

1. From MEXICO to CUAUTLA; distance, 138 kilometres, or 85½ miles; time, nine hours. Two passenger-trains daily. Fares, first class, $2.70; second class, $1.38.

Leaving the station of *San Lazaro*, the track goes easterly past the Lake of *Texcoco* to *Los Reyes*. The old stage-road lies near the railroad, and runs parallel with it for several miles. The railway now forks, the northeastern branch being built to *Texcoco* (42 kilometres), and thence toward *Irolo*.

Texcoco is famous in the history of old Mexico, or *Anahuac*. (*Restaurante Universo.*) It was the chief city next to *Tenochtitlan*. Many of the ancient kings lived here, and since the Conquest it has become an important place for the manufacture of woolen and cotton goods. The ruins of three *teocallis* are still visible. But to give a complete history of *Texcoco*, with its relations to the Aztecs, Toltecs, and their predecessors, would require a volume, so we will not dwell upon it here. This branch extends to *Irolo*, in the midst of a *maguey* region, and is to some degree an opposition line to the Mexican Railway in the transportation of *pulque* to the capital. It is worthy of remark

that trains of a dozen cars on the former road are often loaded with *pulque* in barrels between the stations of *Irolo* and *Mexico*, a distance of 77 kilometres. (See p. 293.)

From *Los Reyes* the train runs eastward to *Ayotla* (25 kilometres). It then turns to the south, and skirts the Lake of *Chalco*, passing the stations of *La Compañia* (35 kilometres), *Tenango* (47 kilometres), and, after ascending a heavy grade, reaches *Amecameca* (58 kilometres).

AMECAMECA.

Population, 10,000; elevation, 8,223 feet.

HOTEL.—At the railway-station, and *meson*, on the *plaza*.

PLACES OF INTEREST.—1. The volcano of *Popocatepetl*. 2. The *Sacromonte*.

No tourist visits *Amecameca* for any other purpose than to ascend the great volcano. It is the culminating point * of North America, being 17,720 feet above the sea-level. The trip to the summit and back requires two days; but, if the traveler wishes to ride and walk rapidly, and possesses extraordinary physical powers, a day and a half will be sufficient. He may leave the capital in the morning, and arrive at the ranch of *Tlamacas*, on the ridge-line between *Popocatepetl* and *Iztaccihuatl*, the same evening. The next day the great volcano may be ascended. The traveler can return to *Amecameca* in the evening, but not in time to take the afternoon train, unless he makes *fast time* on foot and on horseback.

Before setting out, it will be advisable to obtain permission to sleep at the cabin of *Tlamacas* from the owner, General Sanchez Ochoa, who now (1883) resides in the Hotel *Iturbide*, at the capital. If the tourist fail to see General Ochoa, he can sleep either in the open air or in a dilapidated building at the ranch. The house which is generally used

* The original measurement of Mount Saint Elias—*i. e.*, 19,000 feet—has been found to be incorrect.

is a framed structure, with a loose board floor, and is not provided with beds nor mattresses. There are, however, earthenware pots, a few plates, and glasses—all of which are, of course, convenient even for a single night.

On arrival at *Amecameca,* the traveler should lose no time in engaging horses and guides, and he must also provide himself with blankets, provisions, and an alpenstock. Señor Francisco Noriega, who keeps a large store on the north side of the *plaza,* will assist the stranger in procuring the wherewithal for the trip. An extra servant, or *mozo,* should accompany the party, to take charge of the horses during the ascent of the volcano. One guide to each traveler will be *necessary,* and it is unadvisable for a party of three or four persons to climb the peak with a single one. The cost of each guide will be *five* dollars, and of a *mozo three* dollars. Horses can be hired for a dollar a day.

Having made the necessary preparations, the tourist will take the road leading out of the southeastern corner of the town, and travel nearly due east toward the *Sierra.* Fine wheat-fields are passed on the way, and the soil is well watered by the melting snow of the great volcano. The path soon rises, and enters a magnificent forest—a rare feature in the scenery of the table-land—where lofty pines, spruces, and firs abound. Proceeding farther, the trail from *Puebla* soon joins the main path from *Amecameca.* We now reach a growth of thick grass, and, after crossing the crest-line of the ridge and descending the eastern slope for about three hundred yards, the ranch of *Tlamacas* lies before us. The distance from *Amecameca* is about twelve miles.

In starting out for the summit of *Popocatepetl,* the tourist is advised to leave the cabin by 4 A. M., if possible. A horse may be ridden to the edge of the snow-line, about half a mile distant. The ankles should be protected with stout gaiters or pieces of flannel, and the boots should be

well greased, with a view to keeping the feet as dry as possible. The guides will generally attend to the needs of the tourist, and will carry an extra wrap or cloak, together with wine and provisions, on their backs.

The lower part of the peak of the volcano has a slope of about twenty degrees, while the angle increases in ascending until it reaches about forty-five degrees just below the summit.

Travelers should keep their alpenstocks on the *upper* side of the incline while ascending the peak; and, in case of a slip, the weight of the body must be immediately thrown on the alpenstock. Tourists are not tied together by a rope, as in Switzerland. The air is so rarefied that one is compelled to walk very slowly. During the latter part of the ascent it is difficult to make more than two hundred yards in an hour. In general, six hours will be required to reach the top of the peak from *Tlamacas*. The upper part of it is covered with ice, and is practically a glacier, having a very uneven surface.

The crater is not visible until one arrives at the edge. A rough estimate of its dimensions would give the diameter at 500 yards, and the depth at 150 yards. There are several *fumaroles* in the crater from which sulphurous-acid gas is emitted, and a small pond is to be found at the bottom. According to the author's thermometer, the temperature of the air on the summit, at ten o'clock A. M., was 32° Fahr. Clouds usually envelop the peak of *Popocatepetl* after ten o'clock in the forenoon, and the tourist should endeavor to reach the summit by that hour.

We have not space to describe the view, which is so extensive that a region of about 100,000 square miles in area is visible. Suffice it to say that the Gulf of Mexico (150 miles distant) may be seen on a clear day. On account of the highly rarefied atmosphere, not longer than one hour should be passed on the summit.

The descent may be made in one hour and a half. If the snow be tolerably soft, the tourist can sit on a *petate*, or piece of matting, with the guide, and slide down the slope. A rope is attached to the front part of the *petate*, which is held by the *señor*, and the guide, who is seated behind, steers with his alpenstock. The operation is similar to coasting.

Should the stranger fail to ascend the mountain the first time, he can spend two nights at the ranch of *Tlamacas*, and make a second attempt on the following day. The



Acapulco.

sooner the lungs become accustomed to the atmosphere at this great elevation the easier it will be to climb the peak. It is hardly necessary to add that the ascent of *Popocatepetl* is well worth the trouble and expense which it involves.

A visit to the *Sacromonte*, one of the most famous shrines in Mexico, will be found interesting. This mountain lies on the western side of the town of *Amecameca*, and

rises about 300 feet above the plain. A paved pathway leads to a chapel on the summit. There are fourteen "stations," each having a cross and inscription in Spanish, along this path. Many *ex votos* are seen at the door of the chapel. Some of them are in the form of oil-paintings, while others consist of silver arms and legs, which are hung in a glass case. An image of *Nuestro Señor de Sacromonte* is placed on the high altar. The saint wears a gold-embroidered cloak of velvet. Ribbons of various colors, giving the size of the head of Our Lord of the Sacred Mountain, are sold at the entrance and also at the foot of the pathway. The hill is covered with a dense growth of cedars.

Leaving *Amecameca,* the railway runs almost due south past the stations of *Ozumba* (70 kilometres), *Nepantla* (95 kilometres), *Yecapixtla* (111 kilometres), and reaches *Cuautla* (138 kilometres). The chief object of interest on the road is the bridge at *Ozumba,* which is 618 feet long and 41 feet high.

Cuautla, the principal city of the State of *Morelos,* has a population of about 14,000. The name is derived from *Quauhtli—i. e.,* delightful hills—a term given to the town by its founders, the *Tlahuicos.* It was conquered by the Spaniards in 1521, and was created a city in 1829. The objects of interest are the parochial church, City Hall, and *Alameda.*

2. From CUAUTLA to ACAPULCO, about 200 miles.

The railway will be extended from *Cuautla* to *Cuernavaca,* and thence to *Acapulco via Chilpancingo. Cuernavaca* is described in Section III. From a point about 25 miles south of this town, the line will run entirely within *Guerrero,* a State that possesses immense mineral wealth, which is almost totally undeveloped. All tropical fruits, and corn, beans, peas, cotton, and sugar-cane, are grown in this State. There is also a great variety of timber in *Guerrero.*

The region lying along the proposed line of railroad does not possess many places of interest to the traveler. *Chilpancingo,* the capital of the State, is celebrated in history as the town where the first Mexican Congress assembled, on September 13, 1813, after the cry for independence had been raised by Hidalgo. This town has a population of 3,800 inhabitants. (For description of *Acapulco,* see Section IV, p. 236.)

It is said that the Morelos narrow-gauge road will be built to the port of *Vera Cruz, via Perote* and *Jalapa,* at some future time. We are of the opinion that this part of the line will not be completed for several years.



Tree-Fern.

SECTION IX.

The Tehuantepec Railroad.

(Compare with chapter on railroads.)

During the last fifty years plans for establishing a communication between the Atlantic and Pacific Oceans *via* the Isthmus of *Tehuantepec* have been discussed. The Mexican Government in 1841 granted a concession to Don José de Garay to make a connection between the two oceans, provided that the grantee should make a survey, at his own expense, of the ground and the direction which the route should follow, and also of the ports which might be deemed most convenient from their proximity. A survey was duly made, and reports were published. But the route was not necessarily to be a canal, although Señor Moro, the engineer, based his operations upon this assumption.

Soon after the termination of the war with the United States, the franchise of Señor de Garay became the property of Mr. P. A. Hargous, of New York, who, in connection with a company organized in New Orleans, assumed the rights and responsibilities of the Garay grant. After negotiations with the Mexican Government and unavoidable delays, it was agreed that a railroad would be more practicable than a canal. Accordingly, a survey for a railway across the isthmus was made in 1851, under the direction of the late General J. G. Barnard, of the United States Army, who was detailed for that purpose. The surveys demonstrated that a railway would be feasible at a moderate expense; that the grades did not exceed 60 feet per mile, except at

the *Chivela* Pass, where they were 116 feet per mile for the distance of eight miles; and that the summit was 720 feet above the sea-level.

In 1857 the railroad project was resumed, and a new survey was executed under the direction of Colonel W. H. Sidell, of the United States Army. Owing to various reasons, this line was never constructed.

In 1870 the *Tehuantepec Railway Company* was formed in New York. Mr. Simon Stevens became its president, with the late Hon. Marshall O. Roberts as promoter. New surveys and explorations were made, but the road was not built under this administration. Upon a reorganization of the company after unavoidable delays, and with a change of president, and under a charter from the State of Massachusetts, a modified concession was obtained from the Mexican Government on June 2, 1879, to build the *Tehuantepec* Railroad. A subsidy of $7,500 per kilometre was included in the concession. The track was not to exceed 300 kilometres (186 miles) in length.

The *Tehuantepec* Railroad was not finished by the above-mentioned company. It is said that not more than forty kilometres were constructed by this foreign corporation.

In 1882 the Mexican Government made a contract with private individuals for the completion of the *Tehuantepec* line; and in January, 1884, the track was finished from the mouth of the *Goatzacoalcos** River to *Minatitlan*, a distance of 25 miles. The route of the projected railway is about 190 miles in length. The work of construction from *Minatitlan* to the port of *Salina Cruz* is now being pushed vigorously by the Government. It is believed that the road will be finished and opened for traffic in 1885.

The line runs due north and south, and it will traverse the southern portions of the States of *Vera Cruz* and *Oa-*

* Also spelled *Coatzacoalcos*.

xaca. The adjacent country may be concisely described as follows :

The depth of water at low tide is thirteen feet on the bar at the mouth of the *Goatzacoalcos* River, which is navigable for a distance of 30 miles. Placer gold-deposits are said to exist in the interior of the isthmus, although the country has not yet been geologically explored. Large beds of asphalt also occur. The vegetable productions of this region are indigo, tobacco, sugar-cane, cocoa, cotton, coffee, Indian corn, vanilla, sarsaparilla, ginger, and India-rubber.

The terminus of the road will be at *Salina Cruz,* three miles west of *La Ventosa,* on the Pacific coast, which is considered a safe harbor. It is said that work on the southern section of this railway has begun. Winter is the best season for visiting the isthmus, as the summers are very hot and a great variety of insects abound. Some of them are poisonous, and the tourist should exercise extreme caution to avoid being bitten while traveling through the jungle or in camping out.

Humboldt, in his *Political Essay on New Spain,* has referred to the possibility of making the Isthmus of *Tehuantepec* an avenue of travel at some future day. He gives the width of the isthmus at 118 miles. The connections of the *Tehuantepec* Railroad with the Mexican Southern Railroad are mentioned in Section VII.

Captain J. B. Eads has recently visited England, to procure capital to build the *Tehuantepec* Ship-Railway.

The advantages to commerce of a means of communication across the isthmus (either by land or water) can hardly be overestimated. This route lies between latitude 16° and 18°, and, unlike the malarious climate of Panama, the region is comparatively healthy all the year round. While the commerce between Europe and the Pacific Ocean will be carried on *via* the *Isthmus of Panama* for many years, the greater part of the trade between the Atlantic and Pacific coasts of the United States must needs be conducted across the *Isthmus of Tehuantepec* as soon as the railway is finished.

It is hardly necessary to say that the latter route will soon become a

very formidable competitor to the *Panama Railway* as regards passenger traffic.

The distance from New York to San Francisco *via Tehuantepec* is 1,477 miles shorter than *via Panama*, and that from New Orleans to San Francisco is 2,334 miles less by the former than by the latter route.



A Scene on the Isthmus of Tehuantepec.

SECTION X.

The Sonora Railway.

From BENSON to GUAYMAS. Distance, 353 miles; time, 19 hours; fare, $21.

As already stated, the Sonora Railway connects with the Atchison, Topeka and Santa Fé and Southern Pacific Railroads.

(For a full description of these routes, see *Appletons' General Guide to the United States.*)

Elevation of Benson, 3,578 feet; distance from San Francisco, 1,024 miles.

Leaving *Benson,* the line takes a southwesterly direction through the lower part of Arizona to *Nogales* on the Mexican frontier, 88 miles distant. The train stops thirty minutes here. The line between the points just mentioned is called the *New Mexico and Arizona Railroad,* the stations along the route being: *Canisteo,* 7 miles; *Contention,* 15 miles; *Fairbanks,* 18 miles; *Brookline,* 23 miles; *Huachuca,* 29 miles; *Elgin,* 40 miles; *Sonoita,* 49 miles; *Crittenden,* 58 miles; *Sanford's,* 68 miles; *Calabasas,* 77 miles; and *Nogales,* 88 miles.

The road from *Nogales* to *Guaymas* is the *Sonora Railway* proper. It was completed on November 25, 1882. The stations from *Nogales* southward are: *Encina,* 94 miles; *Agua Zarca,* 100 miles; *Cibuta,* 109 miles; *Casita,* 115 miles; *Imuris,* 130 miles (fifteen minutes' stop); *Piersons,* 135 miles; *San Ignacio,* 137 miles; *Magdalena,* 142 miles, *Santa Ana,* 153 miles; *Llano,* 160 miles; *Puerto,* 183

miles; *Querobabi*, 189 miles; *Posa*, 205 miles; *Carbo*, 217 miles; *Pesqueira*, 239 miles; *Zamora*, 247 miles; *Junction*, 260 miles; *Hermosillo*, 263 miles (thirty minutes' stop); *Willard*, 274 miles; *Torres*, 289 miles; *Moreno*, 307 miles; *Ortiz*, 323 miles; *Santa Rosa*, 333 miles; *Maytorena*, 338 miles; *Batamotal*, 345 miles; *Long Bridge*, 348 miles; *Batuecas*, 350 miles; *Guaymas*, 353 miles.



Fronteras, Sonora.

This road extends through a fine cereal and grazing country. Oranges, pears, melons, and other fruits grow at *Hermosillo* and to the southward. This town has 7,000 inhabitants. It contains a good hotel, the *Cosmopolitan*. *Hermosillo* lies in a valley about ten miles long and four miles wide. It is at the base of the *Sierra de la Campana*,



Magdalena.

a rugged mountain of limestone. *Magdalena* has a population of 3,000. A wagon-road leads thence to the town of *Ures*. Another line of railroad will soon be constructed



Arispe.

from *Hermosillo via Ures, Arispe, Bachnachi,* and *Espia* to *Paso del Norte.*

The famous *Mulatos* * mine lies about 120 miles east of *Ures.*

There is a fine *Alameda* at *Arispe.* The capital of the State was formerly located here. In 1832 it was removed to *Ures,* which now has 9,700 inhabitants.

Guaymas, the terminus of the *Sonora Railway,* has a

* A million dollars was recently offered and refused for this mine.

population of 6,000. The hotels are the *Cosmopolitan* and *Central*. Plans for building a railroad to this town have been discussed for many years. Now that the line is finished, *Guaymas* is destined to grow rapidly.

The completion of this road is a very important event, as it establishes the third interoceanic route on this continent. When fast trains are placed on the Atchison, Topeka and Santa Fé line, the journey may be made from New York to *Guaymas* in five days and a few hours. The fare by rail is $108.40. The new line is expected to facilitate communication with Australia, while it will also give the traders of the Mexican, Central, and South American coasts an opportunity to send their products quickly to the Mississippi Valley, the East, and the large cities that lie between the Gulf of Mexico and the Great Lakes.

The Sonora Railway also affords Americans a short route to the ports on the Pacific coast of Mexico.

The city lies in latitude 28° north and longitude 110° 40′ west of Greenwich. It is situated at the foot of a ridge of mountains, and is well protected from winds. Its landlocked harbor is one of the best on the Mexican coast.

The entrance to the port is encompassed by islands. The bottom is covered with a very soft mud, so that masters of vessels intending to remain a long time in the harbor are obliged to raise their anchors occasionally to prevent them from sinking too deeply.

The depth of water in the inner harbor is from two to four fathoms, affording safe anchorage for vessels drawing from fifteen to eighteen feet. The depth of the outer harbor is from four to seven fathoms, allowing safe anchorage for vessels of twenty-two to twenty-eight feet draught. The bay abounds in a great variety of fish.

Guaymas is built along the shore of the bay, its length being about one mile, and its breadth not exceeding a quarter of a mile. The houses are of stone, brick, and *adobe*.



Defile in the Guadalupe Pass, Sierra Madre.

The climate is exceedingly hot in summer, but delightful in winter. The atmosphere is dry, except in the rainy season, which lasts from June to September.

Steamers leave *Guaymas* every twenty days for *Manzanillo*, touching at *Altata, La Paz, Mazatlan*, and *San Blas*.

A wagon-road extends from *Guaymas* to *Buena Vista* on the *Rio Yaqui*, about 100 miles distant, and thence to the mining town of *Alamos*, in the southern part of the State.

There is immense mineral wealth in *Sonora*, which will be developed by the new railroads. Mines of gold, silver, iron, lead, copper, antimony, tin, and sulphur are found in the region adjacent to the *Sonora Railway*, and to the branch road running toward the State of *Chihuahua*. Deposits of carbonate of soda, alum, salt, marble, and gypsum are also abundant along these routes. The same minerals occur at *Oposura, Saguaripa, Altar*, and *Alamos*, the last-named town containing the richest gold and silver mines in the State.

For many years the depredations of the Apache Indians have interfered materially with the development of the metallic wealth.

One of the most important mineral deposits of *Sonora* is anthracite, which has recently been discovered at *Barranca*, on the *Yaqui* River, about 100 miles from its mouth. The coal is found in sandstone and conglomerate, and is said to contain 90 per cent of carbon. It is probably the largest and richest bed of coal in Mexico.

The agricultural products have already been briefly mentioned, but it may be remarked that good crops of sugar-cane, tobacco, rice, and brown beans are also cultivated. Such trees as the rosewood, ebony, logwood, and Brazil-wood grow in abundance.

SECTION XI.

The American and Mexican Pacific Railway.

THE corporate name of this company is "The Texas, Topolobampo and Pacific Railroad and Telegraph Company." Its charter was formed, under the general railroad law of Massachusetts, on the 8th of March, 1881.

The concession from the Mexican Government was obtained on the 13th of June, 1881, and amended on December 5, 1882. The leading provisions are as follow: The right to construct or operate for ninety-nine years a trunk-line of railroad from *Topolobampo* Bay to *Piedras Negras*, on the *Rio Grande;* also to extend branches from the main line to *Alamos*, in *Sonora*, to *Mazatlan*, in *Sinaloa*, to *Presidio del Norte*, on the *Rio Grande*, and to other points —a total of about 2,000 miles. A subsidy from the Mexican Government of $8,064 per mile upon all of its lines—making a total of about $16,000,000. The freight tariff per ton for each kilometre of distance is not to exceed six cents on first-class, four cents on second-class, and two and a half cents on third-class goods, and one and a half cents on every ton of coal. The passenger rates per kilometre must not exceed three cents, two cents, and one cent and a half for the first, second, and third classes, respectively. The Federal Government agrees not to subsidize any parallel railway within a limit of twenty-five leagues on either side of the company's lines.

Wood is abundant along the greater part of the route. Pines and oaks are found at an elevation of 4,000 feet and

upward. Cedars and firs grow on the crest of the *Sierra Madre*, above 6,500 feet.

The State of *Chihuahua* possesses fine grazing-land (see p. 285). There are much fertile soil and valuable timber in the portions of *Sinaloa* adjacent to the line.



The Pitahaya.

This curious plant is common in various parts of Sonora. The stem is from one foot to two and a half feet in diameter, and the height varies from twenty to fifty feet.

The following is a condensed itinerary of this line from *Topolobampo* to *Piedras Negras:*

Gonzalez City, on the north side of the inner port of *Topolobampo* Bay, will be the site of the western terminus of the railway. The projected

city has a water front of 7½ miles. It lies in north latitude 25° 32′. The harbor is 18 miles long, and from one to six miles in width. It consists of two great basins, which are connected by the straits of Joshua. The water is 21 feet deep on the bar at low tide. *Topolobampo* is a far better port than *Mazatlan.*

Leaving *Gonzalez* City, the railway will have a northerly course as far as *Fuerte.* It will then enter the "foot-hills" of the *Sierra Madre*, traverse the southeastern corner of the State of *Sonora*, and run northeasterly, near the rich mining districts of *Urique* and *Batopilas*, to the town of *Bocogna* (elevation, 7,300 feet), in *Chihuahua.* From this place the line will take an easterly direction to *Nonoavas*, and, through the valley of the *Rio Conchos*, to a point near *Parral.* Thence the road-bed will descend to *Jimenez*, on the Mexican Central Railway. Leaving this station, the track will be continued across the *Bolson de Mapimi*, and through the State of *Coahuila*, to *Piedras Negras*, on the *Rio Grande.*

From this point, connection can easily be made with lines for Galveston, New Orleans, or the South Atlantic coast.

This road will traverse a region in which Americans have invested large amounts of capital. The projectors of the railway hope to obtain much of the overland traffic from New York to Australia and New Zealand, as the distance to Auckland is 530 miles shorter *via Topolobampo* Bay than *via* San Francisco, Cal. Hon. William Windom is the president of this new railroad company. It is said that the preliminary surveys are nearly completed, and that the work of grading will be commenced immediately.

SECTION XII.

The New York, Texas and Mexican Railroad (better known as Count Telfener's Railroad).

THIS line begins at *Rosenburg Junction*, Texas, and will run to *Brownsville*, on the northern side of the *Rio Grande, via Wharton, Victoria, San Patricio*, and *Banquete.*

There are two hotels in *Brownsville*, *Miller's* and the *Rio Grande.* The objects of interest are: *Old Fort Brown*, the United States Cemetery, the battle-fields of *Palo Alto* and *Resaca de la Palma*, and *Point Isabel.*

The road will cross the *Rio Grande* at *Brownsville*, and, entering *Matamoros*, it will extend southward to *Tampico*, a distance of about 275 miles.

There is no hotel in *Matamoros.* The places of interest are: The Government buildings, cathedral, theatre, *Plaza mayor*, the city walls, and the garden and *zócalo* at *Santa Cruz Point.*

The climate is very hot in summer. In winter the thermometer occasionally sinks to the freezing-point.

Communication with *Brownsville* is made by row-boats. A *chalan*, or flat-boat, is used for freight.

The Matamoros and Monterey Railroad is completed and in operation as far as *Reynosa*, a distance of 50 miles. (See p. 157.)

Count Telfener * expects to continue this railway along the coast to *Tuxpan*, and thence to the City of Mexico.

* Count Telfener is an Italian. He is also a brother-in-law of Mr. John Mackay, of Nevada.

The distance by this route from *New York* to the Mexican capital will be no less than 600 miles shorter than by the Mexican Central, and 300 miles shorter than by the Mexican National Railway.

Leaving *Matamoros,* the line will trend southwesterly across a flat country *via San Fernando* and *Santander* as far as the twenty-fourth parallel. At this point the track will be extended eastward to the port of *Soto la Marina,* which lies about midway between *Tampico* and *Matamoros.* The harbor of *Soto la Marina* is said to be navigable for large vessels up to a distance of half a mile from the shore. In this respect it is different from nearly all other Mexican ports, which have sand-bars at their entrance.

Count Telfener is reported to have stated recently that he intends to concentrate his working force and materials at *Soto la Marina,* and construct the railway northward and southward from this point. *Soto la Marina* was, during the reign of the viceroys, a flourishing town, but it has since dwindled into an unimportant village. It is situated on the bank of the *Corona* River, about 35 miles from the Gulf of Mexico.

A few American merchants have established themselves here. *Soto la Marina* is celebrated in history as the spot where the unfortunate Emperor Iturbide landed in 1824.

The main line will run almost due south from this port to *Tampico, via Cruces, Realito, Bejarano, Sanapa,* and *Aldama;* while a branch will be extended *via Padilla* * to *Victoria,* the capital of the State of *Tamaulipas,* where it will connect with the Mexican Southern Railroad. (*Vide* Section VII.) The New York, Texas and Mexican Railroad will also cross the eastern branch of the Mexican Cen-

* *Padilla* is a dilapidated old Spanish settlement. It was on the *plaza* of this town that Iturbide, the first Emperor of Mexico, was shot in the autumn of 1824, in accordance with a decree of the National Congress. The population is about 1,500.

tral Railway at *Tampico*. (For description of *Tampico*, see p. 157.)

Proceeding southward from this point, a bridge will probably be constructed across the *Panuco* River, and thence the railway will run in a southeasterly direction to



A Mexican Hacienda.

the port of *Tuxpan*, about 125 miles distant. This division of the route passes through the northern part of the State of *Vera Cruz*, which is noted for valuable wells of petroleum and bitumen. (*Vide* pp. 157, 158.) The region lying between *Matamoros* and *Tuxpan* is fertile for the most part.

Tamaulipas yields extensive crops of sugar-cane, barley, maize, wheat, cotton, rice, *ixtle*,* and tropical fruits. It also contains excellent grazing-lands. The mules raised in this State are said to be the best in Mexico. There is good farming-land in Northern *Vera Cruz*. Extensive forests, consisting of a great variety of woods, are found along the route.

Leaving *Tuxpan*, the railroad will have a southwesterly course through the northern part of the State of *Puebla* and the southern portion of the State of *Hidalgo*, after which it will be continued to the District of Mexico. The last-named tract of country possesses valuable silver-mines. The famous ore deposits of *Pachuca* and *Regla*, in the southern part of *Hidalgo*, are described on pages 196, 197. The *maguey* is planted very extensively in this region. The cereals, brown beans (*frijoles*), and potatoes are also grown. (Up to November 1, 1883, if our sources of information are correct, no rails have been laid on the road-bed of this railway, although it has been graded in several places.)

* Three million pounds of *ixtle* are produced annually.

SECTION XIII.

The Mexican International Railroad.

THIS line is being constructed under the so-called Huntington concession. Its northern terminus is at *Piedras Negras*, in the State of *Coahuila*. An iron bridge, which is 930 feet long, crosses the *Rio Grande* at this point, and communicates with Eagle Pass, Texas. Here connection is made by a branch line with the Galveston, Harrisburg and San Antonio Railroad at Spofford Junction, 34 miles distant.

Leaving *Piedras Negras* (elevation, 720 feet), the railway runs southerly to *Monclova*. The stations are *Nava*, 25 miles; *Allende*, 33 miles; *Sabinas*, 73 miles; *Hermanas*, 125 miles; and *Monclova*, 148 miles. There is an iron bridge over the *Rio Sabinas* (elevation, 1,400 feet). The population of *Monclova* is about 3,000, and the elevation is 2,030 feet. A wagon-road leads to *Saltillo*, 121 miles distant. (See p. 245.)

From *Monclova* the railroad will trend southwesterly toward the "laguna country," where the mean elevation is 4,000 feet. The line will pass within a few leagues of *Parras* and *Mazapil*. Connection will be made with the Mexican Central Railway in the vicinity of Lerdo.

The greater part of the region traversed by the Mexican International Railroad is fertile. The cereals, sugar-cane, and cotton are cultivated at various points.

On February 1, 1884, about 160 miles of track had been laid, and it is expected that the road will be completed to *Maigran* by the end of the current year.

SECTION XIV.

The Sinaloa and Durango Railroad.

THIS line was begun in November, 1881. It will run from the port of *Altata*, on the Pacific, to the City of *Durango, via Culiacan* and *Cosalá*, a distance of about 225 miles. (See p. 9.)

A branch will be extended from *Culiacan* to *Mazatlan.*

At present (February, 1884) the railway is completed from *Altata* to *Culiacan*, a distance of 38½ miles.

The population of *Altata* is about 500. The town was destroyed by a cyclone on October 3, 1883.

The stations are *Guasimillas* (7⅗ miles), *Bachimeto* (14 miles), *Limoncito* (15½ miles), *Navalato* (18 miles), *Yevarito* (22⅘ miles), *San Pedro* (26 7/10 miles), *Bichihualto* (32⅘ miles), *Flores* (34 miles), *Culiacan* (38½ miles).

CULIACAN.

Population, 10,000; elevation, 165 feet.
HOTELS.—*Ferrocarril* and *Diligencias.*

A diligence runs to *Cosalá*, 97 miles from *Culiacan.* The city of *Durango* lies about 130 miles east.*

On February 1, 1884, there were in the Mexican Republic about 3,200 miles of completed railways.

* Since the chapter on railroads was in type, the author has decided to devote a separate section to each of the four last-named railways, for convenience in the preparation of future editions.

The concessions made to American capitalists to build railroads in Mexico amount to nearly 13,000 miles, as follows:

National	2,000
Central	2,000
International (Huntington) and Southern Pacific (two concessions)	4,000
Sonora	265
New York, Texas and Mexican	500
Southern	1,600
Sinaloa	350
Topolobampo	2,000
	12,715



Scene on the Sonora River.

SECTION XV.

Table of Distances (chiefly by Rail).

	Miles.
New York to Laredo, *via* St. Louis	2,187
New York to Laredo, *via* New Orleans	2,400
New York to Mexico City, *via* St. Louis and Laredo	3,007
New York to El Paso, Texas, *via* St. Louis	2,456
San Francisco to El Paso	1,286
El Paso to Mexico City	1,200
Laredo to Mexico City	820
Corpus Christi to Mexico City	983
Monterey to Acambaro	478
Acambaro to Manzanillo	443
Acambaro to Mexico City	172
Vera Cruz to Mexico City	263
Puebla to Mexico City (by rail)	115
Querétaro to Mexico City	152
San Luis Potosí to Mexico City	312
Guanajuato to Mexico City	252
Guadalajara to Mexico City, *via* Lagos	425
Zacatecas to Mexico City	340
San Blas to Mexico City	661
Durango to Mexico City	529
Morelia to Mexico City	222
Oaxaca to Mexico City	350
Perote to Mexico City	237
Acapulco to Mexico City, *via* Chilpancingo	290
Minatitlan to Tehuantepec	135
Benson to Guaymas	353

SECTION XVI.

Guatemala.

PRIOR to the year 1823, Guatemala and Mexico were ruled by the same government. Together, they formed the viceroyalty of New Spain. Hence the resemblance which, in many respects, the two republics bear to each other. Much that has been stated in Part First, concerning the climate, the history, language, literature, religion, education, jurisprudence, tariff, money, weights and measures, immigration, agriculture, geology, zoölogy, botany, and the future needs of Mexico, is in general applicable to Guatemala.

GEOGRAPHY.

AREA, 50,600 square miles. POPULATION, 1,200,000,* which is composed of mestizos, negroes, Indians, and whites. The last-named are about 12,000, of which perhaps 1,000 are foreigners.

BOUNDARIES.—Guatemala is bounded on the north by Yucatan; on the east by Balize, the Bay of Honduras, and the Republics of Honduras and San Salvador; on the south by the Pacific Ocean; and on the west by the Mexican State of Chiapas.

The greatest length from north to south is 320 miles, and the greatest breadth is 280 miles.

MOUNTAINS.—The larger part of the surface of Guatemala consists of an elevated table-land, which is a continu-

* In round numbers.

ation of the plateau of Yucatan. It has a mean altitude above the sea-level of 5,000 feet.

The Sierra Madre, which is a prolongation of the Andes of South America, traverses the country from southeast to northwest, at a distance from the Pacific coast varying between 30 and 50 miles. The mean height of the range is 7,000 feet. The greatest altitude is in the western portion, which bears the local name of the *Cuchumatanes* Mount-



ains. The descent of the Sierra Madre on the southern side is abrupt, while on the northern side it is gradual until it subsides into the plain.

The Cordillera is divided into four sections, viz.:

The Sierra de las Minas;

The Sierra de Santa Cruz;

The Sierra de Chamá; and

The Sierra del Merendon.

1. The *Sierra de las Minas* is bounded on the north by



Native of Mixco.

the valley of the *Rio Polochic* and the Lake of *Izabal*, and on the south by the *Rio Motagua*. The range is formed mostly of igneous rocks. In the western portion it contains mines of some importance, whence it derives its name.
2. The *Sierra de Santa Cruz* rises to the north of that of

the *Minas*, from which it is separated by the valley of the *Rio Polochic*. 3. The *Sierra de Chamá* lies between the rivers *Cahabon* and *Sarstun* on the south, and the *Rio Pasion* on the north, ending in the *Cockscomb* Mountains of the territory of Balize. This range, as well as the last-named one, is composed of limestone.

4. The *Sierra*, or Mountain of *Merendon*, forms the boundary between Guatemala and Honduras. It branches off from the main body of the Cordillera in the department of *Chiquimula*, where its various spurs receive separate and distinct names.

A series of volcanoes, about twenty in number, extends across the country. They are not found in the main Cordillera, but occur in the extremities of its southern branches. A line drawn from northwest to southeast passes through the principal ones, and may be called the volcanic axis of the Cordillera of Guatemala. These volcanoes are divided into three sections—the western, the central, and the eastern. The first section comprises the two extinct volcanoes of *Tacaná* and *Tajumulco*, which are situated in the department of *San Marcos*. From the latter sulphur is mined.

The central section contains several active volcanoes, beginning with the group of *Quezaltenango*. The most important is the *Cerro Quemado*, which has an altitude of 10,200 feet above the sea-level. The last eruption of this volcano occurred in 1785. This group is bounded on the south by the volcano of *Santa Maria* (elevation, 11,480 feet). Going toward the southeast, one sees on the shores of the Lake of *Atitlan* the volcano of *San Pedro* (elevation, 8,200 feet), which is separated from that of *Atitlan* by an arm of this lake. Eruptions from the latter volcano took place in 1828, 1833, and 1852.

The next group is in the vicinity of *Old Guatemala*. To the southwest of this city lies the highest mountain in

Central America, the extinct volcano of *Acatenango*, which is 13,612 feet above the sea-level. To the north is another volcano which is less elevated. This group is bounded on the south by the *Volcan de Fuego*, 13,120 feet high. Its



Volcan de Agua, Old Guatemala.

last eruption was in June, 1880. On the opposite side of the valley of *Old Guatemala* lies the *Volcan de Agua*, which has an altitude of 12,286 feet. To the eastward of this volcano is the group comprising *Pacaya* (elevation, 7,680 feet), which is separated from it by the valley of the *Rio Michatoya*. The last eruption took place in July, 1775. This system includes the two small extinct volcanoes called the *Cerro Redondo*, from the round conical figure of one of them. In the department of *Santa Rosa* lies the only outlier of the Cordillera toward the south, the mountain of *Santa Rosa*, which is between the rivers *Michatoya* and *Esclavos*. The southern end of this mountain is formed by the volcano of *Tecuamburro*.

The eastern section of the volcanoes of Guatemala is

situated in the departments of *Jutiapa* and *Chiquimula*. The northernmost member of this system is that of *Ipala*, whose height is 11,808 feet. To the southward lies the volcano of *Monterico*, which is somewhat smaller. In the same direction and beyond the *Rio Ostúa* is the volcano of *Santa Catarina*, or *Suchitan*, in *Jutiapa*.

The minor volcanoes of *Culma* and *Amayo* are situated on the south-southwest, beyond which is the mountain of *Moyuta*.

The easternmost volcano of Guatemala is that of *Chingo*, having an elevation of 6,560 feet. It is located near the frontier of San Salvador. As in Mexico, the country is divided into three zones, as follows: The *tierra caliente*,



The Plaza, Quezaltenango.

between the sea-level and 1,300 feet; the *tierra templada*, between 1,300 and 4,900 feet; the *tierra fria*, between 4,900 and 8,200 feet. The Atlantic shore-line is very irregular in shape, while the Pacific coast is bordered with

lagoons. The former measures 150 miles and the latter is 260 miles in length.

RIVERS.—The country abounds with brooks and streams, some of which are navigable. The chief rivers are, the *Pasion, Usumacinta, Chixoy, Negro, Polochic, Motagua, Margarita, Maria Linda, Guacalate, Madre Vieja, Samala, Michatoya, Paz,* and *Esclavos.*

LAKES.—The principal lakes are: *Izabal, Peten, Amatitlan, Ayarza, Lacandon, Atitlan, Cuitlan, Guija,* and *Itzan.* Lake *Izabal* is the largest (area, 860 square miles). *Peten* ranks next (area, 160 square miles). The latter is well stocked with fish, and contains a species of alligator. The altitude above the sea-level of Lake *Amatitlan* is 3,890 feet; that of Lake *Ayarza* is 3,100 feet; and that of Lake *Atitlan* is 5,110 feet.

CLIMATE.—Excepting in the vicinity of the marshy lagoons along the Pacific coast, the climate is considered healthy. The rainy season lasts from May to October. The annual rainfall at the capital is computed at fifty-four inches. The rains are heaviest in the *tierra templada.*

SPRINGS.—Hot and cold springs are abundant in the country. Some of them contain sulphurous water. Important saline springs occur in the departments of *Chiquimula* and *Santa Rosa.*

PORTS.—The ports on the Atlantic shore are: 1. *Izabal,* on the south side of the lake of the same name. It lies in north latitude 15° 24′, and longitude 89° 9′ west of Greenwich. The *Rio Dulce* forms the outlet of the lake, and the bar at its mouth prevents the entrance of large vessels. 2. *Santo Tomás,* on the southern end of the Bay of *Amatique,* in the Gulf of *Honduras.* It is situated in north latitude 15° 38′ 3″, and longitude 88° 35′ 6″ west of Greenwich. It is one of the best ports in Central America, although insalubrious. It is the chief seaport of the eastern coast of the Republic. The depth of water in the harbor

is six fathoms, and large ships can anchor close to the shore. 3. *Livingston*, on the left bank of the *Rio Dulce*, near the mouth. It lies in north latitude 15° 48′ and longitude 88° 46′ west of Greenwich. This port was established in 1878, when the custom-house of *Izabal* was removed to it.

The main ports on the Pacific coast are: *San José*, at the mouth of the *Rio Michatoya*, in the department of *Escuintla*, in north latitude 13° 56′ and longitude 90° 42′



General View of the City of Quezaltenango.

west of Greenwich; and *Champerico*, in the department of *Suchitepéquez*, which lies in north latitude 14° 17′ and longitude 91° 57′ west of Greenwich. There are a few minor ports, such as *San Gerónimo*, *Tecojate*, and *San Luis*, in the department of *Escuintla*, and *Los Esclavos*, in the department of *Santa Rosa*.

Political Divisions.—The following table, from Foledo, exhibits the twenty departments into which the Republic of Guatemala is divided, their estimated areas, their respective capitals, their population, and the population of

the capitals. Altogether, the Republic contains 10 cities, 22 towns, 304 townships, and 1,794 hamlets, etc. :

DEPARTMENT.	Area, square miles.	Population.	Capitals.	Population.
Guatemala.....	700	100,000	Guatemala	50,000
Sacatepéquez ...	250	48,000	Antigua	15,000
Amatitlan.....	200	38,000	Amatitlan.....	14,000
Escuintla.....	1,950	30,000	Escuintla.....	10,000
Chimaltenango..	800	60,000	Chimaltenango	6,300
Sololá	700	80,000	Sololá	15,000
Totonicapan.....	700	114,000	Totonicapan	25,000
Quiché.....	1,300	75,000	Santa Cruz del Quiché..	6,300
Quezaltenango...	450	94,000	Quezaltenango.....	22,000
Suchitepéquez...	2,500	69,000	Suchitepéquez.....	11,500
Huehuetenango..	4,550	90,000	Huehuetenango.....	16,000
San Márcos.....	750	100,000	San Márcos	12,600
Peten.....	13,200	14,000	Flores.....	2,200
Verapaz.....	11,200	100,000	Salamá	8,000
Izabal	1,500	3,400	Izabal	750
Chiquimula.....	2,200	70,000	Chiquimula	12,000
Zacapa.....	4,400	28,000	Zacapa.....	4,000
Jalapa.....	450	8,600	Jalapa.....	4,000
Jutiapa.....	1,700	38,000	Jutiapa.....	7,000
Santa Rosa.....	1,100	38,500	Cuajiniquilapa.....	5,000
Total	50,600	1,198,500		

MISCELLANEOUS.

In the year 1524 Guatemala was subjugated by Pedro de Alvarado, who had been the trusted lieutenant of Cortes in the Conquest of Mexico. In 1527 Charles V appointed a captain-general to govern the country.

Simultaneously with the achievement of Mexican Independence, the people of Guatemala threw off the Spanish yoke, and annexed themselves to the so-called empire under Iturbide. Upon the fall of that usurper in 1823, Guatemala became united to the Central American Federal Republic. Eight years later, Guatemala seceded from the remaining states and proclaimed itself an independent republic.

In 1871 a religious war broke out, which led to the ban-

ishment of the archbishop and the suppression of the order of Jesuits. President Barrios, a man of enlightened and progressive views, was elected to the chief magistracy on May 9, 1873, and has continued to fill the office from that day to this. Since the revolution all religions have been tolerated.



The National Institute, Guatemala.

The public debt on January 1, 1882, was $7,139,169. The annual revenue amounts to $7,479,719, and the expenditures are slightly in excess of this sum. The largest export trade is with the United States, and the largest import trade is with Great Britain. The main exports are coffee,* India-rubber, woolen cloths, hides, sugar, specie, timber, cochineal, cocoa, sarsaparilla, and fruit. In 1882 the exports of Guatemala amounted to $3,719,210, and the value of the imports was $2,254,574.

During 1882 the entry of vessels in the three principal ports was as follows: *San José,* 67 steamers, 25 sailing-vessels; *Champerico,* 50 steamers, 14 sailing-vessels; *Livingston,* 41 steamers, 13 sailing-vessels.

* About $4,000,000 worth of coffee is grown annually.

On January 1, 1883, there were in the Republic 811 primary schools, in which 37,469 children were taught by 972 instructors, at a cost of $283,000. Evening schools for mechanics and working-women have also been established. There is a governmental School of Arts and Trades, numbering 15 professors and 150 scholars.

The Government is now encouraging immigration.

The mineral deposits of the country consist of gold, silver, iron, copper, lead, antimony, zinc, coal, gypsum, and marble. Most of the mineral wealth is found in the department of *Chiquimula*, where the far-famed *Olotepeque* mines are still worked. The department of *Izabal* contains auriferous gravel-beds and veins of bituminous coal. The latter are found near the volcano of *San Gil*.



The Government Building, Quezaltenango.

The vegetable resources may be briefly described as follows: A large portion of the Republic is covered with dense forests; valuable woods, like ebony, logwood, walnut, India-rubber, and mahogany, abound. There are many medicinal plants, among which may be mentioned jalap, ipecac,

sassafras, and sarsaparilla. Various kinds of gums, resins, and balsams are also found. The cereals, Indian corn, cotton, vanilla, sugar-cane, rice, and all tropical fruits grow in the country.

Cattle are raised to a considerable extent. The native dialects are the *Cakchiquel, Quiché,* and *Maya.* Some important ruins are found at *Quirigua.* The United States and Great Britain have ministers resident at *New Guatemala.* American consuls, or consular agents, reside at the capital, and at the ports of *Champerico, San José,* and *Izabal.* A transcontinental railway is projected by the Government from *New Guatemala* to *Livingston,* a distance of two hundred and fifty miles. The line will cost about $12,000,000. It is said that the work of construction will be begun in the spring of 1884. There are about 4,000 miles of telegraph in Guatemala.

ROUTES AND CITIES.

Route I.

1. From TONALÁ, MEXICO, to SAN JOSÉ DE GUATEMALA, 221 miles.

Leaving *Tonalá,* the Pacific Mail steamers touch at *San Benito* (102 miles) and *Champerico* (145 miles), (*Champerico Hotel*). A Californian corporation has recently constructed a railway from the last-named port to *Retalhuleu,* a distance of 30 miles. *Retalhuleu* is the capital of the department of the same name, and has a population of 5,000. There are two hotels here. There is no harbor at *Champerico,* but a substantial iron pier has been erected to facilitate the landing of passengers and cargo.

Leaving *Champerico,* the steamer procceds to *San José de Guatemala,* 76 miles distant (*Hotel, San José*). An American consul resides at the latter town. This port is an open roadstead, and has a pier similar to that of *Champerico.*

Route II.

2. From SAN JOSÉ to NEW GUATEMALA, 67 miles. Fares to *Escuintla*, first class, $4; second class, $2. Two trains daily. The maximum rates of freight can not exceed 75 cents a ton.

The Guatemala Central Railroad Company* has recently constructed a narrow-gauge (three feet) line to *Escuintla*, 28·5 miles from *San José*.

The stations are *San José*, *Naranjo*, *Masagua*, and *Escuintla*.

There are eight *barrancas*, or ravines, which are crossed by bridges. The maximum grade is 4½ per cent.

The railway will be extended to the city of *New Guatemala* by the Central American Pacific Railway and Transportation Company, which has recently purchased a controlling interest in the above-mentioned company. The road will be completed during 1884. At present a daily stage-coach connects *Escuintla* with the capital.

GUATEMALA.

Population, 60,000 in 1883; elevation, 4,932 feet.

HOTELS.—*Del Globo*, *Gran Hotel*, *Aleman*, *Del Teatro*.

BATHS.—*Granja del Ciprés*, *El Administrador*, *Matamoros*, and *El Zapote*.

BANKS.—*International* and *Colombiano*.

CARRIAGES, two horses, $2 an hour; one horse, $1 an hour.

DILIGENCES.—To Escuintla, 36 miles; to Chiquimula, 50 miles; to Chimaltenango, 31 miles; and to Old Guatemala, 21 miles.

NEWSPAPERS.—Six are published in the Spanish language.

The City of *Guatemala* is the capital of the Republic. It is situated in north latitude 14° 37′ 32″, and longitude 90° 30′ 47″ west of Greenwich. It was founded in 1776, on the northern end of a broad plain. The streets are straight and cross each other at right angles, but they are badly paved. Owing to the frequency of earthquakes, the

* This railway was begun in June, 1880.

houses are of one story. The *patios* are usually ornamented with statuary or with shrubs and flowers.

The city has several squares. The largest, a rectangle, 625 feet long by 535 feet wide, has on the east side the cathedral and the archiepiscopal palace, on the west the Governor's palace, ministerial offices, etc., with the mint in the rear; on the north the City Hall; and on the south a line of shops. In the center is a fountain and basin formerly surmounted by an equestrian statue of Charles IV, the horse of which alone remains. A large part of this *plaza* is occupied by rows of miserable little huts, in which pottery, iron utensils, *agave*-thread, and other small wares are sold. The rent of these forms a part of the municipal revenue.

In the center of another square is the theatre, equal in size and elegance to any in Spanish America. Rows of



The National Theatre, Guatemala.

orange, oleander, and other trees of brilliant flowers and grateful fragrance surround the building, while a profusion of statues, fountains, etc., placed at intervals throughout the square, enhances the beauty of this fashionable evening promenade.

Foremost among the public buildings is the cathedral, built in 1780, of simple and elegant design, and occupying a space of 450 feet square. In the decoration of the interior, a chaste variety is observed. There are sculptures in wood, and some fine paintings by native artists. There are



The Cathedral, Guatemala.

twenty-four other churches, a hospital, a university, a medical school, and a prison. *Guatemala* has the largest number of educational institutions of any city in Central America. Many of the wealthy people of other States send their children here for instruction.

The capital can boast of an excellent police force, at the head of which is a former member of the municipal police of New York City, the uniform in both places being the same. There are twenty-five public reservoirs and many fountains. The water is brought to the city by two aqueducts, which cost $2,000,000.

The climate of the capital is mild though changeable. April and May are the hottest months. The mean tem-

perature of the year is 65° Fahr., the maximum being 87° and the minimum 41° Fahr.

OLD GUATEMALA (*la Antigua*).

Population, 20,000 in 1883.

The city lies in latitude 14° 34′ 58″ north, and longitude 90° 44′ 5″ west of Greenwich. It was founded in 1524



The Plaza, Old Guatemala.

by Pedro de Alvarado. In 1541 it was destroyed by a flood of water from the adjacent *Volcan de Agua*, near the foot of which the ruins of the ancient capital are extant. The remains are now known as the *Ciudad Vieja;* i. e., Old City.

The city was soon afterward rebuilt on a spot a mile distant from the original site, and between the volcanoes

de Agua and *de Fuego*. These mountains lie about twenty miles apart.

In 1773 the city was almost razed by earthquakes. Several years later it was founded anew in the *Valle de las Vacas*, 25 miles distant from the *Ciudad Vieja*, and the capital was transferred to *New Guatemala*. The modern city is embellished with numerous gardens. Several of the ancient edifices have been repaired, and the beholder is impressed with their former grandeur and solidity.

A small stream, the *Pensativo* River, runs near the city.

There are several schools, and one or two newspapers are published, in old *Guatemala*.

Coffee, sugar-cane, cactus, the cereals, and fruits grow in the environs.

The author wishes to record his grateful sense of obligation to Señor Don Antonio Batres, the present Minister of Guatemala to the United States, for the courtesy with which he has responded to his numerous requests for information regarding the condition and prospects of that Republic.



The Penitentiary, Quezaltenanao.

APPENDIX.

Language.

THE Spanish language, i. e., *Castellano,* is spoken throughout the Republic of Mexico. Some of the Indians talk Spanish, but the greater part of them have never been willing to give up the speech of their ancestors. The Mexican or Aztec dialect is spoken by a larger number of persons than any other native tongue.

The other languages are the Tarasc, Cora, Otomi, Huastec, Mixtec, Totonac, Tzapotec, Maya, Tepehuan, Popolouc, Caquiquel, Mazahua, Taraumar, and Zotzil.

There is some difference between the Spanish of Castile and that of Mexico in the use of adjectives and nouns, *e. g.*, in Mexico, *chico,* meaning "small," is substituted for *pequeño,* and *temblor,* signifying "earthquake," is used for *terremoto.* There is also a slight difference in pronunciation in the two countries, *e. g.*, the "ll" is pronounced like "y" in the word "year" in Mexico, instead of having the palatal sound. The "z" is pronounced like "s," instead of having the lisped sound of "th" in "thief." The guttural pronunciation of the *jota* (j) is not as strongly marked as in Spain, and the "d" is not sounded in the middle of a word. There are twenty-seven letters in the Spanish alphabet, every one of which is pronounced, except "h," which is always silent.

The vowels are pronounced as follows:

a, like a in father.
e, " a " mate.
i, " e " me.
o, " o " go.
u, " oo " boot.
y, " y " liberty.

y is a vowel when it stands by itself, or at the end of a word, or of a syllable immediately followed by a consonant.

The consonants are pronounced as follows:

b, like b in baby (b is often erroneously sounded like v).
c,* " th in theft.
ch, " ch in chess.
d, " d in day and fed.
f, " f in effect.
g, " h in ham, he.
h, " h silent in heir.
j, " h strongly aspirated in home.
l, " l in labial, elect.
ll, " ll in brilliant.
m, " m in amen.
n, " n in energy, no.
ñ, " n (somewhat nasal) in onion.
p, " p in paper.
q, " q in piquet, quint.
r, " r soft in erect.
r, " r or rr (very harsh) in horror.
s, " ss in senseless.
t, " t in tent.
v, " v in velvet.
x, " x (cs) in maxim.
y softer than g or j in gentry, jet.
z like th, lisped z, in thermal.

* C, before *a*, *o*, *u*, *l*, *r*, and when it is at the end of a syllable, sounds like *k* in English.

In *simple* words, *e, i, c, r,* are the only letters that can be written double. In *compound* words, all the vowels, and also *n* and *s,* are written double whenever any of them are the last of the component, and the first of the word to be compounded.

The following words and phrases will be found useful :

VERBS.

Infinitive.

To have.		*To be.*	
Haber.	Tener.*	Ser.	Estar.

GERUND.

Having.		*Being.*	
Habiendo.	Teniendo.	Siendo.	Estando.

PAST PARTICIPLE.

Had.		*Been.*	
Habido.	Tenido.	Sido.	Estado.

Indicative Mood.

PRESENT TENSE.

	I have.		*I am.*	
1.	He.	Tengo.	Soy.	Estoy.
2.	Has.	Tienes.	Eres.	Estás.
3.	Ha.	Tiene.	Es.	Está.
2.	V. ha.	V. tiene.	V. es.	V. está.
1.	Hemos.	Tenemos.	Somos.	Estamos.
2.	Habeis.	Teneis.	Sois.	Estais.
3.	Han.	Tienen.	Son.	Están.
2.	VV. han.	VV. tienen.	VV. son.	VV. están.

IMPERFECT TENSE.

	I had.		*I was.*	
1.	Habia.	Tenia.	Era.	Estaba.
2.	Habias.	Tenias.	Eras.	Estabas.
3.	Habia.	Tenia.	Era.	Estaba.
2.	V. habia.	V. tenia.	V. era.	V. estaba.
1.	Habíamos.	Teníamos.	Éramos.	Estábamos.
2.	Habíais.	Teníais.	Érais.	Estábais.
3.	Habian.	Tenian.	Eran.	Estaban.
2.	VV. habian.	VV. tenian.	VV. eran.	VV. estaban.

* *Tener* means "to have" in the possessive sense.

FUTURE TENSE.

	I shall have.		*I shall be.*	
1.	Habré.	Tendré.	Seré.	Estaré.
2.	Habrás.	Tendrás.	Serás.	Estarás.
3.	Habrá.	Tendrá.	Será.	Estará.
2.	V. habrá.	V. tendrá.	V. será.	V. estará.
1.	Habrémos.	Tendrémos.	Serémos.	Estarémos.
2.	Habréis.	Tendréis.	Seréis.	Estaréis.
3.	Habrán.	Tendrán.	Serán.	Estarán.
2.	VV. habrán.	VV. tendrán.	VV. serán.	VV. estarán.

ARTICLES.

Indefinite Article.

Masculine Singular.	A or an,	Un.	Plural.	Some,	Unos or algunos.
Feminine "	"	" Una.	"	Some,	Unas or algunas.

Definite Article.

Masculine Singular.	The, El.	Plural.	The, Los.
Feminine "	" La.	"	The, Las.

PRONOUNS.

The personal pronouns are: *Singular.*—I, *yo;* thou, *tú;* you (your honor or worship), *usted;* he, *él;* she, *ella;* it, *él*, *ella*, *ello* or *lo*. *Plural.*—We, *nosotros* or *nosotras;* you, *vosotros*, *vosotras*, or *vos;* you (your honors or worships), *ustedes;* they, *ellos*, *ellas*.

Possessive Pronouns.

Singular.	*Plural.*
My, mi.	mis.
Thy, tu.	tus.
His, su or de él.	sus or de ellos.
Her, su or de ella.	sus or de ellas.

	Singular.	*Plural.*
Its,	su or de él.	sus or de ellos.
	su or de ella.	sus or de ellas.
	su or de ellos.	sus or de ellos.
	su or de ellas.	sus or de ellas.
Mine,	mio, mios, mia, mias.	
Thine,	tuyo, tuyos, tuya, tuyas.	

His, her, its, theirs.	suyo, suyos, suya, suyas. el suyo, los suyos, la suya, las suyas. el de él, los de él, el de ella, los de ella. los or las de él, etc.
Our, ours,	nuestro, nuestros, nuestra, nuestras.
Your, yours,	vuestro, vuestros, vuestra, vuestras. de Usted or de Ustedes. el, los, la, las de V. or de VV. suyo, suyos, suya, suyas.

Relative Pronouns.

Quien, in the plural *quienes* or *quien*, who, which, that.
Que, who, which, what, that.
Cual, in the plural *cuales*, who, which.
Cuyo, whose, which.
Cualquiera, in the plural *cualesquiera*, whoever, whichever, whatever.
Quienquiera, whoever, whichever.

Demonstrative Pronouns.

	Sing. This.	*Plur.* These.	*Sing.* That.	*Plur.* Those.	*Sing.* That.	*Plur.* Those.
Masculine.	Este.	Estos.	Ese.	Esos.	Aquel.	Aquellos.
Feminine.	Esta.	Estas.	Esa.	Esas.	Aquella.	Aquellas.

DAYS.

Sunday,	Domingo.	A holiday,	dia de fiesta.
Monday,	Lúnes.	Fast-day,	dia de ayuno.
Tuesday,	Mártes.	Once a day,	una vez al dia.
Wednesday,	Miércoles.	Each day,	cada dia.
Thursday,	Juéves.	To-day,	hoy.
Friday,	Viérnes.	To-morrow,	mañana.
Saturday,	Sábado.	Yesterday,	ayer.

MONTHS.

Enero.	Abril.	Julio.	Octubre.
Febrero.	Mayo.	Agosto.	Noviembre.
Marzo.	Junio.	Setiembre.	Diciembre.

A year,	un año.
A century,	un siglo.
A fortnight,	una quincena.
A week,	una semana.

Numbers.

1, uno.	12, doce.	30, treinta.
2, dos.	13, trece.	40, cuarenta.
3, tres.	14, catorce.	50, cincuenta.
4, cuatro.	15, quince.	60, sesenta.
5, cinco.	16, diez y seis.	70, setenta.
6, seis.	17, diez y siete.	80, ochenta.
7, siete.	18, diez y ocho.	90, noventa.
8, ocho.	19, diez y nueve.	100, ciento.
9, nueve.	20, veinte.	1,000, mil.
10, diez.	21, veinte y uno, or veintiuno.	1,000,000, un millon.
11, once.		

Fractions (*las fracciones*).

Half,	la mitad.
Third,	el tercio, la tercera parte.
Quarter, fourth,	el cuarto, la cuarta parte, etc.
Double,	el doble.
Treble,	el triple.
First,	el primero.
Second,	el segundo.

The Seasons (*las estaciones*).

Spring,	la primavera.	Mud,	el barro, lodo.
Summer,	el verano or estío.	Dust,	el polvo.
Autumn,	el otoño.	Thunder,	el trueno.
Winter,	el invierno.	Lightning,	el relámpago.
Cold,	el frio.	Storm,	la tempestad.
Heat,	el calor.	It is going to rain, va á llover.	
Rain,	la lluvia.	How cold it is, qué frio hace.	
Snow,	la nieve.	Too hot, demasiado calor.	
Dry,	seco.	How warm, qué calor.	

Traveling by Railway.

To travel,	viajar.
A railway,	un ferrocarril.

A train,	un tren.
By the railway-omnibus,	por el omnibus del ferrocarril.
The luggage,	el equipage.
How many parcels?	cuantos bultos?
A baggage-receipt,	un talon del equipage.
Ticket or booking-office,	un despacho de boletas.
I want a ticket,	quiero una boleta.
First-class,	primera clase.
Second-class,	segunda clase.
Third-class,	tercera clase.
How is this station called?	como se llama esta estacion?
How long does the train stop here?	cuanto tiempo se detiene aquí el tren?
A first-class carriage,	un coche de primera clase.
A refreshment-room,	una fonda.
To start,	marchar, salir.
To arrive,	llegar.
A porter,	un portero.
Do we change carriages here?	se cambia aquí de coche (or de tren)?

The Steamboat (*el vapor*).

To embark,	embarcarse.
To land,	desembarcar, ir á tierra.
A boat,	una lancha.
A berth,	un camarote.
The deck,	el puente.
Sea-sickness,	el mareo.

The Inn (*la fonda*).

The rooms,	los cuartos.
A floor,	un piso, principal, segundo, bajo, etc.
A bed,	una cama.
Are the sheets dry?	están secas las sábanas?
Clean,	limpio.
To clean,	limpiar.
To brush the clothes,	acepillar la ropa.
House-maid,	criada.
Lady's-maid,	doncella.
Valet-de-chambre,	ayuda de cámara.

Landlord,	el amo, el fondista.
The bill,	la cuenta.
How much?	cuanto?
Bring the breakfast,	traiga V. el almuerzo.
A clean towel,	una toalla limpia.
To clean the shoes,	limpiar el calzado.
A glass,	un vaso.
Hot water,	agua caliente.
Boiling water,	agua hirviendo.
Wash-hand basin,	la jofaina (lavamanos).
A bottle of drinking water,	una botella de agua para beber.
Chair,	la silla.
Arm-chair,	la butaca, el sillon.
A sofa,	un sofá.
A sitting-room,	una sala.
To call one up,	despertar.
To rise early,	madrugar.
To light the fire,	encender fuego.
A chimney,	una chimenea.
A night-light,	una lamparilla.
Oil,	el aceite.
Waiter,	mozo.
Soap,	el jabon.
W. C.,	el escusado or comun.
Urinal,	el meadero.
Office,	el despacho.
I want a room,	quiero un cuarto.
With two beds,	con dos camas.
Room on the street,	cuarto con vista á la calle.
Inside room,	cuarto interior.
Bill,	cuenta.
How much daily?	cuanto vale diario?
Shut the door,	cierre V. la puerta.
Call my maid,	llame V. á mi doncella.
Bathing-house,	casa de baños.

Dinner (*la comida*).

Give us some dinner,	demos V. de comer.
Dinner is ready,	está lista la comida.

Beef,	carne de vaca.
Boiled meat,	carne cocida.
Salt meat,	carne salada.
Roast,	asado.
Beer,	la cerveza.
Bottle,	la botella.
Biscuit,	el bizcocho.
Bacon,	el tocino.
Brandy,	cognac.
Bread (plain),	pan.
Butter,	la mantequilla.
Cheese,	el queso.
Chicken,	un pollo.
Chop,	una costilla.
A candle,	una vela.
Claret,	vino tinto.
To carve,	trinchar.
Coffee,	el café.
Chocolate,	el chocolate.
A cup of chocolate,	una jicara de chocolate.
A cup,	una taza.
The dining-room,	el comedor.
A dish,	un plato.
Table d'hôte,	mesa redonda.
Where is my cover?	donde está mi cubierta.
An egg,	un huevo, un blanquillo.
A fresh egg,	un huevo fresco.
A fish,	un pescado.
A fork,	un tenedor.
Grapes,	uvas.
Hare,	la liebre.
Ham,	el jamon.
A knife,	un cuchillo.
Lamb,	el cordero.
A lamp,	una lámpara.
A lemon,	un limon.
Liquor,	el licor.
Lettuce,	la lechuga.
Meat,	la carne.

Cold meat,	carne fria.
Milk,	la leche.
Hot milk,	leche caliente.
Goat's milk,	leche de cabra.
Mutton,	el carnero.
An omelet,	una tortilla de huevos.
Oysters,	ostiones.
Pastry,	pastelería.
A cake,	un bollo.
Peach,	abridor, durazno.
Potatoes,	las patatas, papas.
A plate,	un plato.
A large dish,	una fuente.
A rabbit,	un conejo.
A salad,	una ensalada.
To serve,	servir.
A spoon,	una cuchara.
A tea-spoon,	una cucharita.
A napkin,	una servilleta.
Sweet,	dulce.
Sour,	agrio.
Sugar,	el azúcar.
Molasses,	piloncillo, panocha.
Supper—to sup,	la cena—cenar.
A tumbler,	un vaso.
A pitcher,	un jarro.
A wine-glass,	una copa.
Veal,	la ternera.
Vegetables,	los legumbres.
Vinegar,	el vinagre.
Water,	el agua.
Wine,	el vino.

The Post-Office (*el correo, casa de correos*).

The office,	la estafeta.
A letter,	una carta.
A single letter,	una carta sencilla.
A stamp,	una estampilla.
An envelope,	una cubierta.

Paper,	el papel.
A sheet of paper,	un pliego de papel.
A quire of paper,	un mano de papel.
Blotting-paper,	la teleta.
Are there letters for me?	hay cartas para mí?
Here is my name,	este es mi apellido.
Where is the list?	donde está la lista?
Is the office closed?	está cerrado el despacho?
Is it too heavy?	hay esceso de peso?
Must this letter be prepaid?	hay que franquear esta carta?
The postman,	el cartero.

THE CUSTOM-HOUSE (*la aduana*).

An employé,	un empleado.
Is the baggage examined here?	se registra aquí el equipage?
Clothes,	la ropa.
Worn,	usada.
For my own use,	para mi uso personal.
The tariff,	el arancel.
The duties,	los derechos.
What must I pay?	cuánto hay que pagar?
Contraband,	el contrabando.
Shut the trunks,	cierre V. los baules.
The keys,	las llaves.
A carpet-bag,	un saco de noche.
A box,	un baul, una caja.
A hat-box,	una sombrerera.
To search,	visitar, registrar.

DILIGENCE, POSTING, RIDING.

Stable,	la cuadra.
Horses and mules,	caballerías.
Post-house,	la parada, la posta
Post-boy,	el postillon, delantero.
Driver,	el cochero.
What is the name of this village?	cómo se llàma este pueblo?
Are we far?	estamos lejos?
We are near,	estamos cerca.
The drag,	la plancha.

A wheel,	una rueda.
The pole,	la lanza.
A team of mules,	un tiro de mulas.
A saddle,	una silla.
Stirrups,	los estribos.
A whip,	un látigo, una cuarta.
Stop,	pare V.: alto.
To stop,	parar.
To post,	correr la posta.
When shall we get to ——?	cuando llegaremos á ——?
A bridle,	una brida.
Forward,	adelante.

LETTER-WRITING (*para escribir una carta*).

A pen,	una pluma.
A steel pen,	una pluma de acero.
Direction,	sobrescrito, señas.
Note-paper,	papel de cartas.
Envelopes,	los sobres.
Sealing-wax,	el lacre.
A wafer,	una oblea.
To put into the P. O.,	echar una carta en el correo.
A letter-box,	un buzon.
Take this to the P. O.,	lleve V. esta carta al correo.

A CAB (*un coche de alquiler*).

Drive me to — street, No. —,	vaya usted á la calle —, número —.
Are you engaged?	está V. ocupado?
By the hour,	por hora.
Stop here,	pare V. aquí.
Go farther,	vaya V. mas lejos.
Go back,	vuelva V.
Go fast,	vaya V. de prisa.
Go slower,	vaya V. mas despacio.
What is the fare?	cuanto?
It is too much,	es demasiado.
I shall not pay more,	no pagaré mas.
Not engaged, *i. e.*, to let	se alquila.
Coachman,	el cochero.

In a Town (*en una ciudad*).

Where is ——?	donde está ——?
The theater,	el teatro.
The bank,	el banco.
Cab-stand,	la parada de coches de alquiler.
The museum,	el museo.
The garden,	el jardin.
The public walk,	el paseo.
The palace,	el palacio.
The magistrate,	el magistrado.
The mayor,	el alcalde.
Which is the way to ——?	por donde se va á ——?
Turn to the right,	vuelva V. á la derecha.
Turn to the left,	vuelva V. á la izquierda.
A policeman,	un agente de policía.
A street,	una calle.
A square,	una plaza.
I wish to see,	deseo ver, visitar.
I do not understand,	no comprendo.
I do not speak Spanish,	no hablo Español.
I am an American,	soy Americano.
I am an Englishman,	soy Ingles.

The Washing (*lavadura*).

The washerwoman,	la lavandera.
An apron,	un delantal.
A cap,	una gorra.
A collar,	un cuello.
Cotton,	el algodon.
A crinoline,	un miriñaque.
A cravat,	una corbata.
Dirty linen,	ropa sucia.
Drawers,	los calzoncillos.
A dressing-gown,	una bata.
An under-petticoat,	una enagua.
An upper-petticoat,	un guardapiés.
A flannel waistcoat,	un chaleco interior de flanela.
A napkin,	una toalla.
A night shirt,	una camisa de dormir.

A handkerchief,	un pañuelo.
Sheets,	las sábanas.
Shirt,	la camisa.
Stays,	el corse, la faja.
Stockings,	los calcetines, las medias (if long).
Washing,	lavadura.
Washing-bill,	la cuenta de la ropa limpia.
Let us count,	contemos.
Bring the clean linen immediately,	traiga Vd. la ropa blanca ahora.
The stains,	las manchas.
Starch,	el almidon.
To iron,	planchar.

VOCABULARY.

About,	sobre, cerca.
Above (beyond),	encima de, mas de.
Above (or upward),	arriba.
Abroad,	fuera, fuera de su casa.
Accordingly,	en conformidad.
According to,	segun.
Advance, in,	por adelantado.
Afoot, on foot,	á pié.
Afraid, to be,	tener miedo.
Ago, long ago,	pasado, hace mucho tiempo.
All, everybody,	todo, todo el mundo.
All the better,	tanto mejor.
Ambassador,	embajador.
Apartment,	habitación, cuarto.
Appears, it,	parece.
Apple,	manzana.
Apricot,	chabacano.
As for, as to,	en cuanto á.
Ascend, to,	subir.
Ashore,	por á tierra, en el suelo.
Ask, to,	pedir.
As much,	tanto.
Asparagus,	espárrago.

Assembly-room,	sala de reunion.
As soon as,	desde que.
As though,	como si.
Auction,	almoneda.
Auction-room,	sala de ventas.
Auctioneer,	vendutero.
Away,	adelante, lejos de aquí.
Back-door,	puerta de detras.
Bag, carpet-bag,	saco, saco de noche, saco de viaje,
Bakery,	panadería. [ó maleta.
Ball,	baile.
Ball (billiard),	bola.
Banana,	plátano.
Bandbox,	sombrerera.
Bank-book,	libro de banco.
Bank-note,	billete de banco.
Bank post-bill,	mandato á órden del banco.
Bank,	banco.
Branch-bank,	sucursal (del banco).
Bank (joint-stock),	banco por acciones.
Bank (savings),	banco de ahorros.
Banker,	banquero.
Barber,	barbero.
Bargain,	gánga, contrato.
Bargain, to make a good, or to buy cheaply,	hacer una buena compra; ó comprar alguna cosa á buen precio.
Barley,	cebada.
Basket,	cesta; tenate; canasta.
Bath,	baño.
Bath-keeper,	bañista.
Bath (warm),	baño caliente.
Bath (tepid),	baño tibio.
Bath (shower),	baño de asiento ducado.
Bathing room,	sala de baños.
Bathing establishment,	casa de baños.
Bathing-dress or gown,	peinador.
Beans,	habas.
Bedstead,	armadura de la cama.
Bed-clothes,	mantas, sábanas.

Bed-chamber or bed-room,	cuarto por dormir, ó dormitorio.
Bed-time,	la hora de acostarse.
Beef,	buey, res.
Beef-steak,	bifteck.
Beer,	cerveza.
Begone,	vayase V.
Behold, look,	mire V. he aqui.
Bellows,	fuelle.
Bell pull or bell-rope,	cordon de campanilla.
Below or down-stairs,	abajo.
Best, for the; at best,	per lo mejor; la mejor.
Betimes, early,	temprano.
Better, I had,	haré mejor.
Better and better,	mejor y mejor.
Better for the,	mejor.
Beyond (pointing),	allá.
Beyond that house,	mas lejos de esta casa.
Bill-broker,	corredor de cambio.
Billiard-room,	salon de billar.
Bill; bill of fare,	nota; lista.
Bird,	pájaro.
Biscuit,	bizcocho.
Black,	negro.
Blacksmith,	herrero.
Blanket,	manta.
Blind,	velo.
Blue,	azul.
Board (living),	pension, comida.
Boarder (at a boarding-house),	huésped.
Boarding-house or school; family	colegio; casa de huéspedes.
Bolster, [boarding-house,	traversero; almohadon.
Book-binder,	encuadernador.
Bootmaker,	zapatero.
Boots, men's; women's,	botas; botines.
Boot-jack,	sacabotas.
Bottle; half-bottle,	botella; media botella.
Box,	caja.
Brandy,	aguardiente.
Brass,	bronce.

Bread, fresh, stale, household, brown,	pan, tierno, duro, de casa, moreno.
Breakfast,	almuerzo.
Break of day,	punta del dia.
Breeze,	brisa, viento.
Brewer,	cervecero.
Brew-house,	cerveceria.
Bricklayer,	albañil.
Bridge,	puente.
Bring,	traer.
Broad,	ancho.
Brown,	moreno.
Brush; clothes; tooth; boot.	cepillo de ropa; de diente; de botas.
Bug,	chinche.
Build, to,	construir.
Builder,	constructor.
Burial-ground,	cimenterio.
Business; in business	negocio; en el negocio.
Butcher; butcher's shop,	carnicero; carniceria.
Butter; butter-boat,	mantequilla; salsera.
Button,	boton.
By-way,	camino desviado.
Cab,	cabriole.
Cabbage,	col.
Cabin, first; fore cabin,	primera, segunda sala.
Cage,	jaula.
Cake,	bollo.
Candle; wax-candle,	candela.
Candlestick,	candelero.
Cap,	gorro.
Cape,	cabo.
Captain,	capitan.
Card; card-case,	carta; cartera.
Card (visiting),	tarjeta.
Cards, a pack of,	una baraja de naipes.
Carpenter,	carpintero.
Carriage; carriage with two horses,	coche; coche con dos caballos.
Carrots,	zanahorias.
Cart,	carreta.

Cash; ready money,	moneda; dinero al contado, ó con-
Cashier,	cajero. [tante.
Cathedral,	catedral.
Cauliflower,	coliflor.
Cave,	cueva.
Cedar,	cedro.
Certainly,	ciertamente.
Chain; watch-chain,	cadena; cadena de reloj.
Chamber-maid,	camarista.
Chamber-pot,	servicio, orinal.
Chair; arm-chair; easy-chair,	silla; sillon; butaca.
Cheap; cheaper,	á buen precio; mas barato.
Cheese,	queso.
Chemist,	químico.
Check,	mandado.
Check-book,	libro de mandados.
Cherry,	cereza.
Chest; trunk,	caja; cofre, baul.
Chicken,	pollo.
Child,	niño, niña f.
Chocolate,	chocolate.
Choose, to,	escoger.
Church (for Protestants),	iglesia; templo.
Circus,	círculo.
City,	pueblo; ciudad.
Club; society,	reunion; sociedad.
Coach,	coche.
Coachman,	cochero.
Coach-office; coach-stand,	cochera; estacion de coches.
Coat; frock-coat; great-coat,	casaca; levita; pardessus.
Coal; coal-scuttle,	carbon; carbonera.
Coast,	costa; playa.
Cod,	bacalao.
Coffee,	café.
small cup of,	media taza.
with milk,	café con leche.
without milk,	café solo.
Coffee-pot,	cafetera.
Coffee-house,	café.

Coin,	moneda.
Cold, to be,	tener frio.
Colonel,	coronel.
Comb,	peine.
Company,	compañía, sociedad.
Company (joint-stock),	sociedad por acciones.
Compartment (of a railway-car-	departamento.
Compass, [riage,	brújula.
Conceal, to,	ocultar.
Concert,	concierto.
Conductor,	director; guia; conductor.
Contract,	contrato, escritura.
Convent,	convento.
Cook,	cocinero; cocinera.
Copper (money),	cobre.
Corn,	maíz.
Cork; cork-screw,	tapon; tirabuzon.
Corset; corset-maker,	corsé; fabricante de corses.
Cost, the,	precio, gastos.
Cotton,	algodon.
darning,	algodon liso.
reel of,	bobina de algodon.
fabric,	tegido de algodon.
Counter in a shop,	mostrador.
Course at dinner; for races,	servicio; arena ó plaza; hipo-
Court (of a house),	patio. [dromo.
Court (of assizes),	tribunal de la audiencia.
Court (of justice),	tribunal de justicia, juzgado.
Cow,	vaca.
Cowherd,	vaquero.
Cup,	copa.
Cupboard,	armario.
Currant-jam,	confitura; ó dulce de grosellas.
Currants,	grosellas.
Curtain,	cortina.
Custard-apple,	chirimoya.
Custom-house,	aduana.
Custom-house officer,	aduanuero.
Cutlet,	costilla.

Cypress,	cipres.
Daily,	todos los dias.
Dairy,	lechería.
Date-tree,	palma, palmera.
Day; a fine day; a lovely day,	dia; un buen dia; un hermosa dia.
Dear,	querido.
Depart, to,	salir.
Dining-room,	comedor.
Dinner; dinner-time,	comida; hora de comida.
Directly (time),	enseguida; inmediatamente.
Dish (utensil), (food),	fuente; manjar; plato.
Distance; in the distance.	distancia.
Dog,	perro.
Drawing-room,	salon de reunion.
Dressing-room,	cuarto de vestir.
Drink,	beber.
Driver (of a coach),	cochero; conductor.
Drug-store,	droguería.
Eating-house,	fonda.
Elm,	olmo.
Embassy,	embajada.
Entrance,	entrada.
Errand-boy,	mozo que hace comisiones.
Evening,	noche.
This evening,	esta noche.
Yesterday evening,	ayer noche.
To-morrow evening,	mañana por la noche.
Every one,	cada uno.
Everybody,	todo el mundo.
Every day,	todos los dias.
Exchange (building),	cambio; bolsa.
Rate of exchange,	tasa del cambio.
Current exchange,	curso del cambio.
Exchange-office,	casa del cambio; monedas.
Exhibition (sight),	exposicion.
Exit,	salida.
Fair, a	una feria.
Farewell,	adios.
Farther,	mas lejos.

Fasten, to,	amarrar.
Few, a,	un poco de.
Field,	campo.
Finger,	dedo.
Finger-glass,	taza.
Fir (tree),	abeto.
Fire-iron,	adorno de hierro.
Fireman; fire-engine,	bombero; bomba.
Fish,	pescado.
Fishing-rod,	caña de pescar.
Flea,	pulga.
Floor (story),	piso.
Flour,	harina.
Fog,	niebla.
Food or board,	comida, alimento.
Fore-deck,	proa.
Forenoon,	ántes de mediodia.
For instance; in the first instance,	por ejemplo; en el principio.
Fork,	tenedor.
Fortnight; a fortnight ago,	quincena; hace unos quince dias.
Fowl,	ave; volateria.
Freight,	carga, flete.
Friend,	amigo; amiga.
Fritters,	buñuelos.
From,	de.
From above,	de arriba.
From afar,	de léjos.
From behind,	de detras.
From below or beneath,	de abajo.
From here or hence,	de aqui.
From top to bottom,	de arriba abajo.
Fruit; fruit-market; fruiterer,	fruta; mercado de frutas; frutero; frutera.
Full,	lleno.
Furniture,	muebles.
Game,	caza.
Gaol,	prision.
Garden,	jardin.
German,	Aleman.
Grape,	uva.

Gray,	pardo.
Green,	verde.
Guard (railway),	gefe de tren.
Gin,	ginebra.
Glass,	vidrio.
Looking-glass,	espejo.
Eye-glass,	cristal anteojo.
Glasses (spectacles),	anteojos.
Go, to,	ir; andar.
Goose,	ganso.
Greengrocer,	verdulero.
Grocer,	vendedor de comestibles.
Ground-floor,	piso de la calle.
Haberdasher,	mercero; marchante de novedades.
Hackney-coach,	coche de alquiler.
Hair-brush,	cepillo para el pelo.
Ham,	jamon.
Hamlet,	pueblo; pueblecillo.
Harbor,	puerto.
Hat; hat-box,	sombrero; sombrerera.
Hay,	heno, yerba seca.
Heavy,	pesado.
Hemp,	henequen.
Hides,	pieles.
Horse,	caballo.
Horse-race,	corrida de caballos.
Horse-whip,	látigo, cuarta.
Hose or stockings,	medias.
Hosier; hosiery,	marchante de medias; boneteria.
Hostler,	palafrenero.
Hour; half an hour; an hour and a half.	hora; media hora; una hora y media.
House,	casa.
Town-house,	casa de ciudad.
Country-house,	casa de campo.
Housekeeper,	ama de llaves.
Housemaid,	serviente.
Hungry, to be,	tener hambre.
Ice; ice-cream,	hielo; manteeado.

Ice and punch,	helado; sorbete.
Immediately,	enseguida; inmediatamente.
In case; in that case,	en caso que; en este caso.
Indeed,	en efecto; en verdad.
In due course; of course,	en su tiempo; bien entendido.
India-rubber,	hule; goma elástica.
Indigo,	añil.
Inn,	fonda; posada.
Ink,	tinta.
Instead,	en lugar de.
Jacket,	vesta; camisola.
Joint of meat,	pedazo de vianda.
Keepsake,	recuerdo (de amistad).
Key,	llave.
Kidney,	riñon.
Kitchen-maid,	cocinera.
Knapsack,	mochila; saco de viaje.
Knife,	cuchillo.
Carving-knife,	cortador.
Fruit-knife,	cuchillo para las frutas.
Label or ticket (on a box),	etiqueta.
Lace,	blonda,
Lad,	muchacho.
Lady,	señora; señorita.
Lamp; safety-lamp,	lámpara; lámpara de seguridad.
Landlady, of a boarding-house or hotel,	señora; dueña; huéspeda patrona.
Landlord of an inn,	huesped; patron.
Lane, in a town; in the country,	senda; camino.
Last, at.	al último; por último.
Latch-key,	llave de noche.
Laundress,	lavandera.
Lead,	plomo.
Lease,	un arriendo.
Least, at; not in,	al menos; no del todo.
Left; to the left,	izquierdo; á la izquierda.
Less; less and less; so much the less,	menos; de poco en poco; de tanto menos.
Letter,	carta.

Letter of exchange,	letra de cambio.
Light, *adj.*,	ligero, leve.
Lieutenant,	teniente.
Lime (fruit),	lima.
Limestone,	caliza.
Linen,	ropa.
Dirty linen,	ropa sucia.
Clean linen,	ropa limpia.
Line of railway,	via.
Little, a,	un poco.
Not much,	no mucho.
As little as possible,	lo menos posible.
Lobster,	langosta.
Lock,	cerradura.
Under lock and key,	bajo llave.
Locomotive,	máquina.
Lodgings, furnished; unfurnished,	habitaciones muebladas sin muebles.
Logwood,	palo de tinte.
Long ago,	hace mucho tiempo.
Luggage,	equipage.
Luggage-van,	vagon.
Lunch or luncheon,	segundo almuerzo.
Mackerel,	maquerel; sarda.
Maid of all work,	sirvienta para todo.
Man; old man; young man,	hombre; viejo; jóven.
Manufacture, a,	fábrica; obra.
Manufactory,	fábrica.
Map,	mapa.
Market, market-place,	mercado, plaza del mercado.
Mass,	oficios; misa.
Match (for a light),	fósforo.
Meal-time,	hora de comida.
Meat; boiled meat; roast meat,	carne; pulchero; asado.
Merchant,	marchante; negociante.
Mercury,	azogue.
Message; messenger,	mensaje; recado; mensajero.
Milk,	leche.
Minister of State,	Ministro del Estado.
Mint,	moneda; casa de moneda.

Mirror,	espejo.
Miss (young lady),	señorita.
Mist,	niebla; neblina.
Money,	dinero, moneda.
Bad money,	moneda falsa.
Silver,	de plata.
Gold,	de oro.
Copper,	de cobre.
Money changer,	cambista.
Money broker,	corredor de cambio.
Month; by the month; monthly,	mes; al mes; todos los meses.
Moon,	luna.
Full moon,	luna llena.
New moon,	luna nueva.
Moonlight.	luna clara.
More; some more; once more,	mas; mas de; aun; mas; aun de [poco; otra vez.
Morning,	mañana; aurora.
Every morning,	todas las mañanas.
In the morning,	la mañana; por la mañana.
All the morning,	toda la mañana.
Mortgage,	hipoteca.
Most; utmost,	cerca; fuerte; á lo mas; todo lo [mas.
Mother,	madre.
Mother country,	madre patria.
Mother tongue,	lengua materna.
Much,	mucho; bien.
So much,	muy tanto.
Too much,	demasiado.
How much,	cuanto.
Music; music hall or room,	música; sala de música.
Music-dealer,	marchante de musica.
Mustard; mustard-box,	mostaza; mostacero.
Mutton,	carnero.
Mutton-chop,	costilla de carnero.
Leg of mutton,	pierna de carnero.
Needle,	aguja.
Newspaper,	periódico.
Newsvender,	marchante de periódicos.
Night,	noche.

Good night,	buenas noches.
All night,	toda la noche.
Every night,	todas las noches.
Noon,	mediodia.
Not at all,	no del todo.
Note (letter),	carta.
(small letter),	billete.
(bank note),	billete de banco.
Now,	ahora.
Till now,	en este momento, hasta aquí.
Just now,	ahora mismo.
Nurse; nursery,	nodriza; cuarto para los niños.
Oak,	roble; encina.
Oar,	remo.
Oats,	avena.
Oil,	aceite.
One; once,	un; una; una vez.
Onion,	cebolla.
Opera; opera-glass,	opera; gemelos.
Opinion; in my opinion,	opinion; á mi parecer.
Orange,	naranja.
Outside, the (of a diligence),	fuera; exterior.
Outskirts of a town,	arrabal.
Over; above; across; upon,	encima de; por encima; sobre; [al traves; sobre.
Overcoat,	sobretodo.
Ox-tongue,	lengua de buey.
Oyster,	ostion.
Palace,	palacio.
Paper,	papel.
Newspaper,	periódico.
Letter-paper,	papel de cartas.
Blotting-paper,	papel secante, teleta.
Parcel,	paquete.
Parlor,	peño salon; locutorio.
Part; for my part,	parte; porcion; por mi parte.
Partner; at a ball; business,	bailarin; bailarin socio, socia; [pareja.
Passenger,	pasajero.
Pastry; pastry-cook,	pastelería; pastelero.
Path,	camino, vereda.

By-path,	senda.
Foot-path or pavement,	acera.
Pawnbroker's shop,	monte pio.
Peach,	melocoton.
Pear,	pera.
Peas, green,	guisantes, chícharos.
Pencil,	lapiz.
Penknife,	cortaplumas.
Pepper, pepper-box,	pimienta, pimentero.
Pheasant,	faisan.
Pickpocket,	estafador; ratero.
Picture,	cuadro; pintura.
Pier,	mola; escalera; muelle.
Pillow,	almohada.
Pin,	alfiler.
Pinch of snuff,	polvo; polvo de tabaco.
Pine,	pino.
Pine-apple,	piña.
Pint; half a pint,	pinta; media pinta.
Pipe (for tobacco),	pipa.
Pit (theatre),	platea.
Places round about,	los lugares del alrededor.
Plate; soup-plate,	plato; plato para la sopa.
Play,	comedia.
Play-house,	teatro.
Bill of the play,	programa.
Pleasure-boat; boatman,	lancha; barquero.
Plough,	arado.
Pocket; pocket-book,	faltriquera; bolsa; cartera.
Police,	policía.
Police-officer,	agente de policía; guardia civil.
Police-court,	tribunal de policía.
Pomegranate,	granadita.
Poor,	pobre.
Poplar,	alamo.
Pork,	cochino.
Pork-chop,	costilla de cochino.
Pork-butcher,	salchichero.
Post-office,	casa de correos.

By the post,	por el correo.
Office for letters to be left until	posta restante.
Postage-stamps, [called for,	estampillas.
Potato,	patata, papa.
Present (gift); at present,	regalo; presentemente.
Preserves,	dulces.
Price; lowest price,	precio; el último precio.
Prison; prisoner,	carcel, prision; prisionero.
Provisions,	víveres; comestibles.
Prune (plum),	ciruela.
Publisher,	editor; publicador.
Pump; fire-pump,	bomba; bomba de apagar los in-
Pumpkin,	calabaza. [cendios.
Purpose,	fin; efecto.
On purpose,	espreso; de propósito.
To no purpose,	sin efecto.
To little purpose,	poco efecto.
Purse,	bolsa.
Quarter,	cuarto, barrio.
Quiet,	tranquilo.
Rabbit,	conejo.
Race-course,	terreno de corridas.
Railroad or railway,	ferrocarril.
Railway station,	estacion.
Raspberry,	frambuesa.
Read, to,	leer.
Receipt; receipt in full,	recibo; carta de pago.
Red,	colorado; rojo.
Refreshment-room,	fonda.
Rent, to,	alquilar.
Retail,	por menor.
Retail-dealer,	vendedor por menor.
Wholesale and retail,	por mayor y menor.
Return ticket,	boleta de vuelta.
Right,	derecho.
To the right,	á la derecha.
Ring, to,	tocar.
River,	rio.
Road; carriage-road,	ruta, camino; via carretera.

High-road, or main road; by-road; cross-road,	camino real; camino desviado; camino cruzante.
Room,	cuarto.
Round about,	todo alrededor.
Route,	rumbo.
Rye,	centeno.
Saloon,	salon, sala de visitas.
Salt,	sal.
Same,	mismo.
It is all the same,	es todo lo mismo; es igual.
Sauce,	salsa.
Saucer,	platillo.
Sausage,	salchichon.
Say, to,	decir.
Scarcely,	apenas.
School,	escuela; colegio.
Boarding-school,	colegio.
Day-school,	colegio.
Schoolmaster,	maestro.
Sea; rough sea,	mar; alta mar, mar agitada.
Smooth sea,	mar tranquila.
Sea-sickness,	mareo.
Sea-side,	costa.
Seed,	semilla.
Servant,	sirviente, sirvienta; criado.
Servant of all work,	criada para todo.
Shave, to,	rasurar.
Sheep,	oveja.
Sheet,	sábana.
Ship; steamship,	buque; vapor.
Shoe,	zapato.
Shoe-black,	limpiabotas.
Shoe-horn,	calzador.
Shop,	almacen; tienda.
Shop-keeper,	tendero; tendera.
Shovel,	pala.
Show, to,	enseñar.
Side, this; that side,	por este lado; por aquel lado.
Slice,	tajada.

Soap,	jabon.
Soldier,	soldado.
Soup,	sopa.
Sponge,	esponja.
Spoon,	cuchara.
Tablespoon,	cuchara para la sopa.
Dessert-spoon,	cuchara para postres.
Teaspoon,	cuchara de té.
Spruce,	pruche.
Stable (for horses),	caballeriza.
Stableman,	criada de establo.
Stairs,	escalera.
Up-stairs,	á arriba.
Down-stairs,	á abajo.
Stamp,	timbre.
Station-master,	gefe de estación.
Steamboat,	vapor.
Steam-boiler,	caldera de vapor.
Steam-engine,	máquina á vapor.
Story (of a house), on first, second, etc.,	piso, al primer piso, al segundo, etc.
Stew (of meat, etc.),	estofado; guisado.
Straight ahead,	todo derecho.
Straw,	paja.
Strawberry,	fresa.
Street,	calle.
String-beans,	ejótes.
Strong,	fuerte.
Sugar; lump of sugar,	azúcar; pedazo de azúcar.
Summer,	verano.
Sunrise; sunset,	salida del sol; ponerse del sol.
Supper; supper-time,	cena; hora de cena.
Surgeon,	cirujano, médico.
Sweep, to,	barrer.
Sweetbread,	lechecilla de ternera.
Sword,	espada.
Table,	mesa.
Card-table,	mesa de juego.
Writing-table,	mesa para escribir.

Work-table,	mesa de trabajo.
Table-cloth,	mantel.
Table-linen,	ropa para la mesa.
Tailor,	sastre.
Tart, a,	tarta.
Tax,	contribucion.
Tea,	té.
Tea-kettle, tea-pot,	tetera.
Tea-things,	servicio para el té.
Tea-tray,	plato.
Teacher,	maestro, maestra; profesor.
Telegraph,	telégrafo.
Electric telegraph,	telégrafo eléctrico.
To telegraph,	anunciar por telégrafo.
Theater,	teatro.
There,	allí.
Here and there,	aquí y allí.
Down (or over) there,	allá abajo.
Up there,	allí arriba.
Thick,	espeso; grueso.
Thin,	delgado.
Thing,	objeto.
Thirsty, to be,	tener sed.
Ticket (railway),	boleta.
Till now,	hasta aquí.
Till then,	hasta entónces.
Till to-morrow,	hasta mañana.
Till Wednesday,	hasta el miércoles.
Time-table (railway),	indicador.
Tin,	estaño.
Title,	título.
Tobacco,	tabaco.
Tobacco-pipe,	pipa.
Tobacconist,	marchante de tabaco.
To-day,	hoy.
Every day,	todos los dias.
Good-day,	buenos dias.
To-night,	esta noche.
To-morrow; the day after to-morrow;	mañana; pasado mañana.

Tooth,	diente.
Tour,	vuelta.
Tourist,	viajero.
Tower,	torre.
Towel,	toalla.
Town; town-hall,	ciudad; casa de ayuntamiento.
Train (railway),	tren.
Down-train,	tren de salida.
Up-train,	tren de vuelta.
Ordinary train,	tren ordinario.
Express train,	tren directo.
Fast train,	tren volante.
Mail train,	tren de correo.
Travel, to,	viajar.
Traveler,	viajero.
Commercial traveler,	viajador de comercio.
Tree,	árbol.
Trunk (traveling),	baul.
Trust, to,	confiar.
Tunnel,	tunel; subterráneo.
Turf,	cesped; campo de corrida.
Turn, to,	volver.
Twilight,	crepúsculo.
Umbrella,	paraguas.
Under,	debajo.
Up,	alto; arriba.
Down,	abajo.
Up there,	allá arriba.
Use,	uso; empleo.
Of use,	útil.
For the use of.	al uso de.
Usury,	usura.
Veal,	ternera.
Vegetables,	legumbres.
Velvet,	terciopelo.
Vest,	chaleco.
Vinegar; cooked with vinegar,	vinagre; á la vinagreta.
Village,	pueblo.
Visit, to,	visitar.

Voyage; on a voyage,	viaje; travesía; en viaje.
Watch,	reloj.
Wages,	salario, gajes.
Wagon,	carreta, vagon.
Waiter,	mozo.
Waiting-room,	salon de espera.
Waitress,	muchacha.
Wake, to,	velar.
Walk,	paseo; vuelta.
Walking-stick,	baston.
Warehouse,	almacen.
Warm, to be,	tener calor.
Washerwoman,	lavandera.
Water,	agua.
Clean water,	agua limpia.
Cold water,	agua fria.
Warm water,	agua caliente.
Fresh water,	agua fresca.
Water-bottle,	jarro.
Watermelon,	sandia.
Wax,	cera.
Wax-light,	candela.
Wayfarer,	caminante.
Weary,	cansado.
Weather,	tiempo.
Fine weather,	buen tiempo.
Rainy weather,	los tiempos de lluvia.
Week,	semana.
This day week,	de hoy en ocho.
Last week,	la última semana.
Next week,	la semana próxima.
Wheat,	trigo.
Wheel,	rueda.
White,	blanco.
Willow,	sauce.
Wind,	viento.
Wine; red wine,	vino; vino tinto.
White wine,	vino blanco.
Wine-glass,	vaso de vino.

